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ANESTHESIA, PAST AND PRESENT

Chairman's Address

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In using the subject "Anesthesia Past and Present" it is not my intention to give unnecessarily a history of anesthesia, but many of the highlights and milestones passed along the way must be presented in order to bring out the progress made in this specialty over the years. This progress came slowly at first.

ANESTHETIC AGENTS AND EQUIPMENT

Nitrous Oxide.—Nitrous oxide was discovered by Priestley in 1772, and Davy in 1800 suggested that since nitrous oxide "appears capable of destroying physical pain, it may probably be used with advantage during surgical operations." However, it was not until Dr. Colton was induced in 1844 to give Horace Wells nitrous oxide for the extraction of one of his teeth that the agent was first used. Its early use was almost entirely limited to dentistry. In 1868 Edmund Andrews added oxygen to nitrous oxide, but this innovation was not readily accepted, as everybody thought that air had to be excluded in a nitrous oxide anesthesia and that it was foolish to add oxygen. In 1872 the Johnston Brothers Dental Depot in New York compressed nitrous oxide to a liquid and put it in tanks. Not until 1898 was the first machine brought out for proportioning the gases. It consisted of a double hanger yoke without valves or gages. I have seen those machines and have used one a few times. Then in rapid succession in the next ten to fifteen years were brought out the White, the Teter, the Clark, the McKesson, the Heidbrink, the Connell, the Ohio Monovalve, the Gwathmey and the von Foregger machines. Then Boothby and Cotton introduced reducing valves. From this stage in 1912 until the present these machines along with reducing valves, gages, sight feeds and flowmeters have been developed to the accurate, dependable and mechanically perfect machines now in use.

It took nearly fifty years from the time when Davy first suggested the use of nitrous oxide until it was first used by Wells and another fifty years before there was a machine which would proportion the gases. Fifteen to twenty years more were required to perfect the valves, gages and feeds. Yet many hundreds of thousands of persons were anesthetized during this time. I have had a Teter, a Clark, the early Heidbrink and the Ohio Monovalve before getting the more modern machines.

Read before the Section on Anesthesiology at the Ninety-Eighth Annual Session of the American Medical Association, Atlantic City, N. J., June 9, 1949.

Ether.—Ether was discovered by Lullius in 1200. It was called sweet vitriol. Paracelsus discovered its soporific qualities in 1540 and recommended its use in painful conditions, and Frobenius in 1792 gave it the name of ether. It was used from then on in the treatment of painful respiratory conditions. For many years before its first trial as an anesthetic in 1842, it was used in various parts of the country for its exhilarating effect; it was while a young fellow was on an ether jag and injured himself that Dr. Long discovered its anesthetic effect. He used it on some 8 patients, but did not report his experience with the drug until 1848. When Dr. Morton gave his first demonstration for Dr. Bigelow in 1846, it was at the suggestion of Dr. Jackson, a chemist. Dr. Morton attempted to keep the nature of ether a secret and even to patent it under the name of letheon; he had to be told by Drs. George Hayward and J. C. Warren that he could give no more anesthetics for them until he told all the physicians what he was using. Morton agreed to this, and on April 7, 1847, he gave his second demonstration for Dr. Hayward.

APPARATUS AND METHODS

Early apparatus for the administration of ether were all similar in pattern; that is, air was passed over or through ether volume in closed containers of various sorts. The first attempt to get away from the pungent odor and the suffocation that went along with the concentrated ether vapor was made by combining ether with other less pungent agents. Various combinations of alcohol, chloroform, ethyl bromide and ethyl chloride with ether were used. One which was popular for some time was the A. C. E. mixture (one part alcohol, two parts chloroform and three parts ether). As with nitrous oxide, it was believed that air should be excluded, only enough being admitted to prevent asphyxia. Later various types of masks came into use. One of the first of these was the Allis inhaler; as late as 1901 Heineck in his book described the use of this inhaler, saying that it was a mistake to suppose that air must be excluded. He said the ether should be given so that air is present in the proportion of about 5 per cent while the patient is struggling. He also administered ethyl bromide by pouring the full required dose into the inhaler. It is interesting to note that ethyl bromide was used as an inhalation agent just as ethyl chloride was used.

Later a more gradual method was adopted in which the ether or chloroform was dropped on the mask. The drop method was first used for chloroform and later adopted for ether. Even after the drop method was in general use, it was more or less customary in ether anesthesia to wrap a wet towel about the mask. Then the pendulum swung the other way, and physicians were no longer afraid to mix air freely with ether. The open mask became the popular method, later the

semiclosed mask with the exclusion of air and the much more gradual increase in the concentration of the agent.

I remember the first time I witnessed the giving of an anesthetic, in 1908. It was not expertly given; there was much struggling, coughing and strangling on the part of the patient, and I thought what a horrible experience it must be to take an anesthetic. However, during my junior and senior years in medical school in 1911-1912, when I attended the surgical clinics, I was to witness for the first time anesthesia induced with nitrous oxide, and nitrous oxide followed by ether. I then found that I was more interested in anesthesia than in surgery. I plied the anesthetist with so many questions that he gave me all the literature and pamphlets that he had and I read them and reread. In the latter part of the senior year each student was supposed to give anesthetics under supervision to 3 patients. I did fairly well with two ether anesthesias and asked if I might try a nitrous oxde; one day I was allowed to sit in on an operation after anesthesia had been induced with nitrous oxide. I did not sit long, as I was overly cautious: the instructor had to take over and get the patient asleep again. As an intern I had no trouble trading work with the other interns so that I gave the anesthetics. To this time knowledge of anesthesia was obtained by word of mouth, in recounting experiences, and by trial and error. Each man was attempting to perfect a technic of administration, and at this stage anesthesia was an art. Without much literature on the subject, each man was left to work out his own technic, and a few became exceedingly efficient.

DEVELOPMENT OF LITERATURE ON ANESTHESIA

The first book on anesthesia (by John Snow) was published in 1858. Hewitt's handbook in 1888, his edition of "Anesthetics" in 1893 and Heineck's book in 1901 were practically the extent of the literature. Even Snow's volume in 1858 showed a marvelous grasp of fundamentals on ether and chloroform, and Hewitt too emphasized many things to do and not to do; Heineck drew many basic conclusions. These men could not always interpret what they saw, but they put down all their observations and gave some definite interpretations. For instance, Hewitt said that a large proportion of deaths due to chloroform anesthesia occurred in minor operative procedures, and Sir B. W. Richardson (quoted in Heineck's book) said that the element of fear can easily lead to heart failure, the fatal result taking place within a few minutes after the commencement of the inhalation. Heineck therefore stated that in no circumstances should incomplete anesthesia be deemed sufficient for even the most trivial operation, as pain may inhibit the action of the heart and lead to syncope and death. This is good advice even today.

Heineck also made the observation that ether increased the bronchial secretions and that the stagnation of these in the bronchi can excite pathologic conditions in the lungs. To this time there was little premedication used, as nearly all physicians were afraid to mask the signs of anesthesia, particularly the action of the drugs on respiration and on the pupil.

Heineck also told of Hare's experiments to determine the relative value of the Sylvester and Marshall Hall methods of artificial respiration, in which curare was used to prevent voluntary breathing. I believe this is the first reference that I have seen to the use of curare in this manner.

In 1914 Dr. Gwathmey's book was the first to treat effectively of the physiology of anesthesia. In 1915 and in 1916 Dr. McMechan put out a yearbook on anesthesia and analgesia. He was instrumental in having printed, beginning in 1916, a quarterly supplement on anesthesia in the *American Journal of Surgery;* this was continued for about ten years. Then came Poe's book and Guedel's "Signs of Anesthesia" in 1920 and Labat's "Regional Anesthesia" in 1922. These were all milestones in the progress of anesthesiology.

ORGANIZATION OF ANESTHESIA AS A SPECIALTY

Although the Long Island Society of Anesthetists was formed in 1905 in Brooklyn and the American Association of Anesthetists was organized in 1912 in Minneapolis with Dr. Gwathmey as the first president, the real credit for the organization of anesthesia as a specialty belongs to Frank McMechan. He organized the Interstate Society (Ohio and Kentucky) in 1915. Hamilton Long of Louisville, Ky., and E. I. McKesson of Toledo, Ohio, were among the first members. McMechan organized the National Anesthesia Research Society at Cleveland in 1919, and this name was later changed to the International Anesthesia Research Society. In succession he organized the Eastern, Southern, Mid Western, Pacific States and Canadian societies. The first congress of Anesthetists was held in 1921, and the following year *Current Researches in Anesthesia and Analgesia* began publication. This was the first medical journal to be devoted entirely to anesthesia. In the early twenties he came to Colorado and assisted in setting up a Colorado State Society of Anesthetists, in affiliation with the Mid Western Society.

METHODS OF ADMINISTRATION OF ANESTHESIA

Local, Regional and Spinal Anesthesia.—The next notable change was the popularization of regional anesthesia by the publication of Labat's book in 1922. The whole field of local, regional and spinal as well as intravenous anesthesia was all dependent on the discovery in 1853 of the hypodermic needle by Alexander Wood and the syringe by Charles G. Pravez. Koller first used cocaine as a local anesthetic in 1884. The following year William S. Halsted used it as a nerve block and J. Leonard Corning used it in the spine, evidently as a peridural agent. He later used it as a nerve block, and in 1894 injected it into the medullary canal as a spinal anesthetic. August Bier in 1898 and Rudolph Matas in 1899 also used it as a spinal anesthetic. In 1903 stovaine® (benzoyldimethylaminomethylpropanol hydrochloride) was introduced by Fourneau, and in 1904 procaine (novocain®) was brought out by Alfred Einhorn. For several years stovaine® was the more popular agent, even though procaine was less toxic. I first observed spinal anesthesia induced with stovaine® in 1912. As late as 1918 Tuffier was still using cocaine for spinal anesthesia. Danis was performing transsacral blocks in 1913. Regional blocks and spinal anesthesia were never popular and were seldom attempted; little was written concerning them prior to World War I, which gave added impetus to regional and spinal work. It remained for Labat's demonstrations and the publication of his book on regional anesthesia to popularize these methods.

Intratracheal Anesthesia.—William Macewen in 1878 was the first to introduce anesthesia through a tube inserted into the trachea, and in 1895 Kirstein first introduced a tube into the trachea by a direct vision

laryngoscope. But intratracheal anesthesia was not used to any extent until 1909, when Elsberg used it. It did not become popular until 1920, when Magill's work brought it to the fore. I gave my first intratracheal anesthesia in 1917. An amusing thing happened to me in 1919. I administered an ether intratracheal anesthesia of four hours' duration to a patient undergoing excision of a carcinoma of the lip and a block dissection of the lymph nodes of the neck. The patient sued me for giving him an anesthetic without his consent or knowledge. By that time in my career I could fairly consistently induce effective anesthesia in a patient, but I never thought that I could administer ether without the patient's knowledge that he was getting an anesthetic.

Intravenous Anesthesia. — Intravenous anesthesia was introduced by Oré of France in 1872. He gave about fifty anesthesias intravenously using chloral hydrate. Adoption of the intravenous method of inducing anesthesia was slow. It was not until 1901 that Fedorow used hedonal, but the agent was given in such large dilution that edema of the dependent parts was the usual result, so this compound was combined with chloroform and ether. Burkhardt in 1909 and 1910 also administered chloroform and ether intravenously. Then isopropyl alcohol was tried. In 1913 Noel and Souttar used paraldehyde. This was administered extensively to the wild alcoholic addicts and the insane. In 1924 the barbituric acid derivatives were being used in France and Germany. Diallylbarbituric acid (dial®) was the first to be given a trial by Bogendörfer, then somnifene® (barbital and diallylbarbituric acid) was used by Perlis. Jackson in 1927 used alurate® (allylisopropylbarbituric acid) and Keller used amobarbital (amytal®). And in 1929 sodium amytal® was used. This was an experimental process. Action of some derivatives was short, of some long. In 1931 Lundy used pentobarbital sodium (nembutal®) and suggested the intermittent use of these drugs. In 1932 Weese first used evipal® (5-[1-cyclohexen-1-yl]-1,5-dimethylbarbituric acid) which was one of the derivatives with the shortest action. In 1934 Lundy brought out thiopental sodium (pentothal sodium®), and this remains the best intravenous agent and is used in every conceivable combination with other agents for the induction of balanced anesthesia.

Rectal Anesthesia.—Pirogoff first gave ether by rectum in 1847. Molière tried this method of administering it again in 1885. Gwathmey used the rectal route to give ether and oil in 1913. Paraldehyde also was administered rectally that year. Chloral hydrate and nearly all of the barbiturates have been so given. But avertin® (tribromoethyl alcohol solution), first given by O. Butzengeiger in 1926, is still the best agent for rectal administration. Trichloroethanol was used clinically by Wood in 1939.

OTHER ADVANCES IN ANESTHESIA

Although ethylene was discovered by Johannes Ingen-Housz in 1779, it was not until 1918 that its anesthetic qualities were investigated by A. B. Luckhardt and R. C. Thompson. It was first used clinically by Luckhardt, Carter and Brown in 1923. This was the first new gaseous agent for inhalation anesthesia since nitrous oxide; it enabled anesthesia to be maintained with a higher percentage of oxygen, thus eliminating some of the asphyxia which resulted from the use of nitrous oxide and oxygen as an anesthetic agent.

In 1923 also, Ralph Waters developed soda lime for use in carbon dioxide absorption. Brian C. Sword introduced the closed circle (filter) method of anesthesia clinically in 1928. Experiments in carbon dioxide absorption had been performed years previously, and Dr. D. E. Jackson of Cincinnati had incorporated a carbon dioxide absorber in his machine in 1915.

Cyclopropane. — Cyclopropane was discovered by August Von Fruend in 1882. The anesthetic qualities of this gas were demonstrated by G. H. W. Lucas and V. E. Henderson in 1928. Then Waters and his associates at Wisconsin, W. B. Neff and E. A. Rovenstine used it clinically in 1933. This is by far the best gas for anesthetic purposes. It has deservedly gained wide popularity and wide usage.

Curare.—Another milestone in anesthesia was the first clinical use of curare for muscular relaxation of the subject by Griffith in 1942, at the suggestion of Louis Wright.

SUMMARY

The anesthetist has a wide variety of agents from which to choose, according to the purpose for which he would use them and the method he chooses to follow. Unlimited combinations of agents may be used to produce anesthesia. Accurate and dependable gas machines control the respiration of the patient. There are excellent tubes for endotracheal and endobronchial use and many types of laryngoscopes for the introduction of these tubes.

The greatest advances have been made in the use of blood, plasma and crystalloid materials to combat hemorrhage and prevent shock. Results of the liver and kidney function tests will influence the choice of an agent. Premedication has become individualized, not only as to patient and operative procedures but as to the agent used. Preoperative preparation has progressed to the point where few patients can be considered inoperable. Better understanding by anesthetist and surgeon of physiology and supportive therapy will bring many patients safely through major surgical operations that would have been fatal a few years ago. This is due in great measure to the large number of departments of anesthesiology that have been established in the medical schools in the past ten years, and to the skilled anesthesiologists who have completed residency training. The future of anesthesiology rests not only in the establishment of a department of anesthesiology equipped to give resident training in every medical school in the country, but resident training must be given in every hospital where a specialist certified by the American Board of Anesthesiology, Inc., heads the department and where the facilities are adequate for competent teaching. Also, arrangements must be made for the training of the part time anesthetist, for certified specialists are woefully inadequate in numbers.

As I look back to the day when the general practitioner, the misfit or the incompetent physician were the ones who usually gave the anesthetics, I can readily understand why the equality of the anesthesiologist in the family of internist, surgeon and obstetrician has been so long delayed. Too few physicians were really interested in anesthesia as a specialty, persistently sought to keep abreast of progress in the field and constantly strove to keep anesthesia on a par with the other specialties in medicine. This has been an unending battle, principally because anesthesia was not attractive either financially or in terms of prestige to

the younger physicians. Hence, the number of anesthesiologists fell far below that required to meet the demands of surgical practice. As a consequence, technicians were trained in anesthesiology and in many instances were exploited by the hospitals and in some instances, I am sorry to say, by the anesthesiologists themselves. The specialty will take its rightful place only when there are enough trained anesthesiologists to meet the demands of surgical practice.

Great progress is being made toward meeting that demand, as evidenced by the May 14 issue of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, which shows that there are 530 residencies in anesthesiology offered by the various hospitals of this country. In addition there are 94 offered by the Veterans Administration and an additional 27 by the Army, Navy and Public Health Services. In all, 651 residencies are available. This is very encouraging. This program not only should be continued but should be augmented to include the training of part time anesthesiologists if practice of the specialty is ever to revert to the members of the medical profession.

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SOME COMMON FALLACIES AND CONFUSIONS WITH REGARD TO REPAIR OF INGUINAL HERNIA

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During the recent war I was constantly being amazed at the state of confusion in the minds of young medical officers as to salient points in the operation for inguinal hernia which those of us in the older generation had thought to have become so fixed as to be almost as well known as the Ten Commandments. Since the war, in visiting various Army hospitals as surgical consultant, I have found the same confusion to exist. Nor is the confusion limited to young medical officers. Reports appearing in the medical literature from civilian surgeons show the same confusion to exist with them. A great many of these authors speak in an authoritative manner from a very limited experience, as indicated by their own reports. If they were more experienced, they would not be so authoritative and dogmatic. A recent article [1] contains the following statement: "Contrary to general opinion, the Halsted operation employs the principle of suture of the internal oblique and conjoined tendon to the shelving edge of Poupart's ligament without anterior transposition of the cord." All those familiar with the development of the modern operation for inguinal hernia will recognize this at once as an incorrect statement. Many such misstatements are constantly being made, both in and out of the surgical literature. One wonders how such errors have gained headway. Can it be that the subject of hernia is improperly taught in many of the medical schools? Are not some of the professors of surgery themselves a little confused about some of the points in repair of inguinal hernia?

The influence of the written word is far reaching, no matter how incorrect the written statements may be. The influence of the spoken word, when spoken by those in authority (as well as by lesser persons), is scarcely less far reaching. The old logical fallacy of *argumentum ad verecundiam* (argument to authority) is still prevalent even in this supposedly ultrascientific age.

The object of this paper is not to condemn those who have made the errors—the errors are entirely too common for general condemnation. A great many of them have come about naturally and, I believe, are due to a type of legendary teaching, rather than being inspired by reference to original sources.

There are many persons who think that the custom of attaching the names of surgeons to operations is unwise. It undoubtedly is in some ways, but the system is with us, and is found to be very convenient both in talking and in writing about a great many of the best known operations. In this paper I hope to point out some of the confusions in nomenclature, as well as the reasons for their having come about, and to discuss some of the salient principles in the operative repair of inguinal hernia which are often neglected. I trust that my readers will condone any mistakes I may make in trying to correct those of others. To err is human.

STANDARD MODERN OPERATIONS

Halsted [2] and Bassini [3] are rightly considered the fathers of the modern operation for the repair of inguinal hernia. These two great surgeons developed their operations simultaneously and entirely independently of each other, and published the reports of their operations at approximately the same time (1889-1890).[4] Their operations differed principally in the fact that in Bassini's operation the cord was transplanted between the internal oblique muscle and the aponeurosis of the external oblique muscle. In Halsted's operation the cord was transplanted external to the aponeurosis of the external oblique in the subcutaneous position. Halsted originally resected most of the veins of the cord, but later abandoned this procedure because he encountered cases of atrophy of the testis as a result of it. Both operators sutured the internal oblique muscle to Poupart's ligament (inguinal ligament). Neither of these surgeons overlapped the aponeurosis of the external oblique muscle in making their closure but simply approximated the edges of that structure.

Ferguson,[5] of Chicago, was the first of the post-1890 workers in the field of hernia surgery to adopt the method of nontransplantation of the cord, leaving it undislocated in its bed. He insisted that this operation was better than those in which the cord was transplanted, as it did not disturb the normal anatomy of the patient. It is true that prior to Ferguson's publication Coley [6] had reported operations in which he had left

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1. Farris, J. M.; Ettinger, J., and Weinberg, J. A.: The Hernia Problem, with Reference to a Modification of the McVay Technique, Surgery **24**: 293-303 (Aug.) 1948.

2. Halsted, W. S.: Radical Cure of Hernia, Bull. Johns Hopkins Hosp. **1**: 12-13 (Dec.) 1889. (The paper was presented before the Johns Hopkins Medical Society on Nov. 4, 1889).

3. Bassini, E.: Ueber die Behandlung des Leistenbruches, Arch. f. klin. Chir. **40**: 429-476, 1890.

4. Bassini made two earlier reports, but they were published in little read Italian journals (Arch. d. Soc. med. ital. **2**: 179-181, 1889; Arch. d. Soc. chir. ital. **5**: 315-319, 1888), which did not reach the attention of the medical public.

5. Ferguson, A. H.: Oblique Inguinal Hernia: Typical Operation for Its Radical Cure, J. A. M. A. **33**: 6-14 (July 1) 1899.

6. Coley, W. B.: Operative Treatment of Hernia, with a Report of Two Hundred Cases, Ann. Surg. **21**: 389-437, 1895; Radical Cure of Hernia, with a Report of Three Hundred and Sixty Cases, ibid. **25**: 270-305, 1897. Bull, W. T., and Coley, W. B.: Observations upon the Operative Treatment of Hernia at the Hospital for the Ruptured and Crippled, ibid. **28**: 577-604, 1898.

the cord in its bed. While he considered the operation had much to commend it, he stated that his cases were too few to enable him to estimate its comparative value, and in the large majority of his reported cases the repair was done by the Bassini method, which he considered superior to all other methods.

Andrews,[7] of Chicago, was the first American to adopt the principle of the imbrication of the aponeurosis of the external oblique in making its closure. In making the imbrication, he placed the cord between the two flaps of the aponeurosis—a method now little used. He sutured the edge of the inner flap of the aponeurosis of the external oblique to Poupart's ligament, along with the internal oblique muscle and the transversalis fascia. The cord was then dropped on this inner flap and the outer flap was sutured over the cord, leaving the cord between the two flaps. Here, again, it is true that Lucas-Championnière,[8] in France, had overlapped the flaps of the aponeurosis before Andrews. However, his imbrication had been a simple overlapping; furthermore, he had not stressed the point as much as Andrews did, and therefore Andrews' name has come to be more associated (in this country at least) with the procedure than that of Lucas-Championnière.

The operation, then, of utilizing the principles of nontransplantation of the cord and of the imbrication of the aponeurosis of the external oblique came to be known as the Ferguson-Andrews operation.

While this operation was being developed, Halsted also had been trying to improve his original operation and had been experimenting with methods other than his original one. In 1903[9] he published the results of his clinical investigations, and his new operation turned out to be essentially the same as the Ferguson-Andrews operation. As pointed out in his article, he had tested the relative value of nontransplantation of the cord from the very outset and had also utilized the principle of the simple imbrication of the aponeurosis of the external oblique. He had, therefore, again independently worked out the procedures described by Ferguson, Andrews and Lucas-Championnière. Halsted was at that time the leading exponent of hernia surgery in America, and his operation began to be called, in places outside Baltimore, the Hopkins operation and the Halsted II operation. In Baltimore it was called the Ferguson-Andrews operation, and I believe that that is the proper designation. Although the operation was worked out by Halsted independently, Ferguson and Andrews first published the salient principles involved in it, and therefore their names should have priority. Certainly, if any operation were to be called the "Hopkins operation," it should be the original Halsted operation, for that operation was developed at the Johns Hopkins Hospital by Halsted, the first professor of surgery in the Johns Hopkins School of Medicine.

From the foregoing survey, I believe it becomes clear why the authors spoken of in the first paragraph fell into the erroneous notion that in the Halsted operation the cord was not transplanted.

7. Andrews, E. W.: Imbrication or Lap Joint Method: A Plastic Operation for Hernia, Chicago M. Rec. **9:** 67-77 (Aug.) 1895; Past and Present Obstacles to the Radical Cure of Hernia, with Demonstrations, J. A. M. A. **28:** 868-871 (May 8) 1897.

8. Lucas-Championnière, J.: Cure radicale des hernies; avec une étude statistique de deux cents soixante-quinze opérations et cinquante figures intercalées dans le texte, Paris, Rueff & Cie, 1892, pp. 192-196.

9. Halsted, W. S.: Cure of the More Difficult as Well as the Simpler Inguinal Ruptures, Bull. Johns Hopkins Hosp. **14:** 208-214 (Aug.) 1903.

CHOICE OF OPERATION

What is the best type of operation for the repair of inguinal hernia? Certainly, there is no unanimity of opinion with regard to this question. Certainly, also, the type of operation should be made to fit the anatomy of the patient being operated on. This is especially true in the operation for recurrent hernia. There is, however, no unanimity of opinion as to the best type of operation to be used for the ordinary, run-of-the-mine, primary indirect inguinal hernia. Unfortunately, follow-up statistics on any large scale are not available. Indeed, it is difficult to obtain reliable follow-up statistics. A very large percentage of patients will not answer follow-up letters. Others will have moved and cannot be contacted.

Judging from the literature and from conversations at meetings with surgeons from various parts of the country, I am inclined to believe that the Bassini operation is the most popular in the country at the present time. The original Halsted operation (subcutaneous transplantation of the cord), however, has come to be more and more used during the last ten to fifteen years. The Ferguson-Andrews operation is apparently less used than formerly. It was pretty consistently used by Halsted from the time of the publication of his article in 1903[9] until his death, in 1922. His many pupils throughout the country also used it (except in cases of direct hernia, recurrent hernia and indirect hernia in which there was a large defect near the pubic bone), and some of them still do. In the middle 1920's, however, the operation began to lose its popularity, and it is certainly now less used than the other standard procedures. The Cooper ligament operation, first used by Lotheissen[10] in 1898 for the repair of inguinal hernia, has been revived by McVay and Anson[11] and has gained considerable popularity, which, in my opinion, is highly merited. The use of strips of fascia, both autogenous[12] and preserved,[13] is not so common as it once was. Burdick[14] and his co-workers have shown that the incidence of infection is greater with both these materials than with the ordinary suture materials used in surgical practice. The McArthur procedure[15] has merit and is still used by a fair number of surgeons.

CAUSES OF RECURRENCE

At a recent round table discussion of the subject of hernia which I conducted, the question was asked, What makes a hernia recur? That is certainly a pertinent question, and one to which every thoughtful surgeon has necessarily given a great deal of thought. This question must be taken into consideration, not only in deciding on the type of operation to be used, but also in the actual execution of whatever operation is decided on. No matter what operation is used, there is now no difference of opinion as to the proper handling

10. Lotheissen, G.: Zur Radikaloperation der Schenkelhernien, Centralbl. f. Chir. **25:** 548-550 (May 28) 1898.

11. McVay, C. B., and Anson, B. J.: A Fundamental Error in Current Methods of Inguinal Herniorrhaphy, Surg., Gynec. & Obst. **74:** 746-750 (March) 1942.

12. Gallie, W. E., and LeMesurier, A. B.: Use of Living Sutures in Operative Surgery, Canad. M. A. J. **11:** 504-513 (July) 1921; Transplantation of the Fibrous Tissues in the Repair of Anatomical Defects, Brit. J. Surg. **12:** 289-320 (Oct.) 1924.

13. Koontz, A. R.: (*a*) Experimental Results in the Use of Dead Fascia Grafts for Hernia Repair, Ann. Surg. **83:** 523-536 (April) 1926; (*b*) Dead (Preserved) Fascia Grafts for Hernia Repair: Clinical Results, J. A. M. A. **89:** 1230-1234 (Oct. 8) 1927.

14. Burdick, C. G.; Gillespie, D. H. M., and Higinbotham, N. L.: Fascial Suture Operations for Hernia: Summary and End-Results of 1,485 Operations, Ann. Surg. **106:** 333-343 (Sept.) 1937.

15. McArthur, L. L.: Autoplastic Suture in Hernia, and Other Diastases: Preliminary Report, J. A. M. A. **37:** 1162-1164 (Nov. 2) 1901; Autoplastic Sutures in Hernia, and Other Diastases: Final Report, ibid. **43:** 1039-1043 (Oct. 8) 1904.

of the sac. The principle of high ligation has become so axiomatic as to require no discussion. There are thousands of cases to show that good results may be obtained by any of the aforementioned well recognized methods for the plastic repair, after the sac has been properly dealt with. What, then, are the factors concerned in the recurrence of hernia after repair by any of the approved methods? I venture to suggest the following as four of the principal causes: (1) the presence of areolar tissue, left on important structures which are to be sutured together; (2) tension; (3) use of absorbable sutures, and (4) poor tissues.

Areolar Tissue.—The importance of removing areolar tissue from important structures, such as muscle and fascia, which are to be sutured together was fairly well demonstrated by me more than twenty years ago.[16] To leave areolar tissue on such structures results in a thin, flimsy type of union, which has no strength whatever. Removal of the areolar tissue, so that the important structures can come into close contact and intimate apposition with each other, results in a very firm type of union. In operating for recurrent hernia, every surgeon has seen, time and time again, the internal oblique muscle firmly united to Poupart's ligament throughout part of the original suture line and entirely pulled away from it throughout the remaining part. What is the reason for this firm union in one place and nonunion in the other? It might be that at the previous operation the areolar tissue had not been thoroughly cleaned off both structures throughout the entire length of the suture line. No doubt, of course, undue tension also plays a part. Be that as it may, I am convinced that many surgeons pay too little attention to ridding thoroughly all important structures of areolar tissue before suturing them together.

Tension.—For several decades there has been much talk about the elimination of tension in suturing the various layers in the repair of inguinal hernia. Sometimes the very surgeons who have talked most about it in lectures have failed to put the principle into practice at the operating table. I have seen such surgeons approximate tissues under such tension that only the strength of their heavy sutures enables them to bring the tissues into apposition. There are unquestionably times when, in order to close a defect at all, some tension is required. However, such tension can be greatly reduced, and almost entirely eliminated, in the repair of inguinal hernia by using the important method of Halsted,[9] recently revived by Fallis,[17] Rienhoff,[18] Tanner[19] and others, of making an incision in the sheath of the rectus abdominis muscle. This procedure gives nearly complete relaxation of the inguinal structures and almost invariably permits them to be sutured together without any tension whatsoever. Such an incision does not weaken the anterior abdominal wall. It was shown many years ago,[13a] in connection with other experimental work of mine on hernia repair, that the anterior sheath of the rectus abdominis muscle may be resected with impunity because it repairs itself. (Stone[20] made use of this principle, when necessary to make incisions for relaxation, in his operation for umbilical hernia. His operation, in my opinion, is entirely too little used.) In making the relaxation incision of Halsted in the anterior sheath of the rectus abdominis muscle, care should be taken to place the incision over the center of the muscle, and not at its lateral border. If the incision is placed at or near the lateral border, the retraction of the cut edge of the sheath is likely to leave a gap along the lateral border of the muscle, with nothing between the posterior sheath of the rectus abdominis and the subcutaneous tissue when the final closure is made. This might weaken the abdominal wall at this point. The same reasoning would be an argument against Halsted's[9] method of reflecting a flap of the anterior sheath of the rectus abdominis over to Poupart's ligament in making the hernia repair.

Absorbable Sutures.—In my opinion, the use of absorbable sutures in hernia repair is an invitation to disaster. I say this in spite of the fact that some outstanding men (among them, one of my most distinguished colleagues) use absorbable suture material routinely. My reason for condemning the practice is that one cannot rely on the length of time that absorbable sutures will stay in position; certainly, it is necessary that any suture material used should keep in close apposition the important structures used in hernia repair until firm healing has taken place. Failure to do this is bound to result in recurrence.

Poor Tissues.—Every surgeon has operated on hernias in which the tissues were so poor that he felt discouraged and foredoomed to a recurrence. Various methods have been used to overcome this handicap, such as flaps of fascia, free transplants of fascia, preserved sheets of fascia[21] and autogenous[12] and preserved strips of fascia.[13] Most surgeons have used all of them, with varying degrees of success. Recently, in cases with very poor structures I have been using a small piece of tantalum mesh,[22] sutured in place over the first line of sutures (conjoined tendon to Cooper's [pectineal] or to Poupart's ligament, as the case may be) and under the aponeurosis of the external oblique muscle. The method has not been used long enough to permit a proper evaluation of it clinically. However, experimental work with it indicates that the fibrous reaction around and through the mesh is so strong that the results will be far better than those obtained with the other methods mentioned.

HANDLING OF THE CORD

The method of handling the cord is one in which there is no unanimity of opinion, as shown by the fact that it is handled in different ways in three of the best known operations for repair of hernia, namely, the Halsted, the Bassini and the Ferguson-Andrews operation. Here, again, there are no reliable follow-up statistics to give a clue to the best procedure. When Coley[23] wrote his chapter on hernia for Keen's "Surgery" in 1908, there had already been observed (1890 to 1906 inclusive) at the Hospital for the Ruptured and Crippled in New York 75,000 cases of hernia. Since then, there have probably been several times that many. What an opportunity for one group

16. Koontz, A. R.: Muscle and Fascia Suture with Relation to Hernia Repair, Surg., Gynec. & Obst. **42**: 222-227 (Feb.) 1926.
17. Fallis, L. S.: Direct Inguinal Hernia, Ann. Surg. **107**: 572-581 (April) 1938.
18. Rienhoff, W. F., Jr.: Use of the Rectus Fascia for Closure of the Lower or Critical Angle of the Wound in the Repair of Inguinal Hernia, Surgery **8**: 326-339 (Aug.) 1940.
19. Tanner, N. C.: A "Slide" Operation for Inguinal and Femoral Hernia, Brit. J. Surg. **29**: 285-289 (Jan.) 1942.
20. Stone, H. B.: Umbilical Hernia: A Method of Operative Treatment, Arch. Surg. **12**: 494-500 (Feb.) 1926.
21. Koontz, A. R.: Preserved Fascia in Hernia Repair, with Special Reference to Large Postoperative Hernias, Arch. Surg. **26**: 500-509 (March) 1933.
22. Koontz, A. R.: Repair of Ventral Hernias with Tantalum Mesh: Preliminary Report, South. M. J. **41**: 214-217 (March) 1948; Preliminary Report on the Use of Tantalum Mesh in the Repair of Ventral Hernias, Ann. Surg. **127**: 1079-1085 (May) 1948.
23. Coley, W. B.: Hernia, in Keen, W.: Surgery, Philadelphia, W. B. Saunders Company, 1908, chap. 53, vol. 4.

of surgeons to try each of the several approved methods of hernia repair in thousands of cases and to compare the results! However, so far as I know, no such clinical experiment has ever been tried on a large scale. The surgeon, then, has to handle the cord as he thinks best, on theoretic grounds largely. I, personally, was first trained in the Ferguson-Andrews operation; I then switched to the Bassini method, and I now routinely use (in adults) the Halsted type of transplantation of the cord. I do this because, in my opinion, if the cord is to be transplanted at all (and I believe in transplanting it to remove the weak spot from the lower angle of the wound), it is better not to leave it between the conjoined tendon and the aponeurosis of the external oblique. If there is no structure such as the cord between these two layers, they will grow together, and the combined structure will form a firmer buttress against intra-abdominal pressure than if it is separated into layers by the cord. Furthermore, subcutaneous transplantation of the cord allows a tight closure of the aponeurosis of the external oblique right down to the spine of the pubis, further strengthening the site of usual recurrence. The main objection that has been raised to the subcutaneous transplantation of the cord is that in certain instances, especially in thin persons, it may prove a source of tenderness. I have never seen this occur.

COOPER'S LIGAMENT REPAIR

During the last three years I have used Cooper's ligament operation rather routinely. McVay and Anson [11] have done surgery a great service in pointing out that this ligament is in the same fascial plane as the conjoined tendon, while Poupart's ligament is in a superior fascial plane (the same as that in which lie the aponeurosis of the external oblique muscle and the fascia lata). This being true, it is more logical to suture the conjoined tendon to Cooper's ligament than to Poupart's ligament. To suture it to Poupart's ligament is to transpose the fascial planes. Besides, in actual practice, one certainly has a greater sense of security, after the first line of sutures is placed, in Cooper's ligament repair than in operations in which the conjoined tendon is sutured to Poupart's ligament. In Cooper's ligament operation the ligament should be thoroughly exposed before any sutures are placed. This is not the practice of some surgeons. House men in some of the hospitals in which I work have told me, when assisting me in this operation for the first time, that they had never before seen Cooper's ligament, although they had assisted other surgeons in doing Cooper's ligament repairs. To put sutures into this ligament blindly is wrong, for two reasons: 1. If the loose preperitoneal areolar tissue covering the ligament is not first cleared away, a firm union of the sutured structures will not be obtained, as already pointed out.[10] 2. Unless the ligament is thoroughly exposed, so that one knows exactly what structures are being pierced by the needle, one may encounter severe bleeding from aberrant vessels, and even the femoral vein itself may be injured. The statement is often made that the internal oblique muscle should not be sutured to Cooper's ligament (or to the inguinal ligament in other types of hernia repair). What do these surgeons do in those cases in which there is no transversalis fascia? Such cases are by no means infrequently encountered. In these cases, if the internal oblique muscle is not sutured to the ligament, there is nothing to suture to it (unless fascia is transplanted). It is fine to be theoretic about "white fascia" apposition, but one cannot always pull white fascia out of a hat. It has been, I believe, amply demonstrated that muscle will grow to fascia [16] if the areolar tissue is carefully removed from both structures before they are sutured together. It has also been demonstrated that the union is in reality a fascia to fascia union, the fibrous components of the muscle (the epimysium, perimysium and endomysium) forming the union with the fascia and the muscle fibers themselves being completely inert in the process. Of course, pure white fascia would form a stronger union with Cooper's (or Poupart's) ligament than muscle, because the white fibrous elements are more abundant in pure white fascia than in muscle. However, when the former is absent, the latter has been proved to be an excellent substitute. Those cases in which the surgeon is not satisfied with the strength of his first suture line are logical opportunities for the implantation of a strip of tantalum mesh over the suture line to strengthen it.

EARLY AMBULATION

I am in favor of early ambulation. The main argument against it is that it puts too much strain on the suture line. Admittedly, it does place strain on the suture line; but if the suture line will not hold in spite of the strain, the hernia will recur anyway. The straining that frequently occurs while a patient is coming out of anesthesia puts a terrific strain on the suture line. I have seen patients under general anesthesia break strong heavy silk sutures by straining when anesthesia was allowed to become too light. Postoperative straining while the patient is coming out of the anesthesia should be prevented by early sedation. It has been shown that the strain of putting a patient into opisthotonos on a bedpan increases the intra-abdominal pressure as much as early ambulation.[24] Coughing, vomiting and straining at stool increases it much more.[24] With early ambulation the patient does better in every way and there are fewer complications, as has repeatedly been stated in the literature. Healing probably takes place faster, for two reasons: Ambulation (1) increases the blood supply to the wound and (2) tends to keep the patient in positive nitrogen balance—keeping a well patient in bed causes a daily loss of nitrogen.[25] Early ambulation, however, does not mean that a patient should sit in a chair for hours at a time, especially during the first few days after operation. Such a posture angulates the veins in the groin, just as Fowler's position does, and increases the tendency to thrombosis. It is preferable to have the patient either lying flat or walking around during the first few days. As a further precaution against thrombosis, I give dicumarol® as a routine prophylactic measure in the case of patients of middle age or older, and of younger persons when indicated. To discuss the details of this medication is not within the scope of this paper.

SUMMARY

Some common fallacies and misconceptions with regard to the repair of inguinal hernia are discussed, and some neglected principles are reiterated.

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25. Howard, J. E.; Bigham, R. S., Jr.; Eisenberg, H.; Wagner, D., and Bailey, E.: Studies on Convalescence: IV. Nitrogen and Mineral Balances During Starvation and Graduated Feeding in Healthy Young Males at Bed Rest, Bull. Johns Hopkins Hosp. **78**: 282-307 (May) 1946.

ABSTRACT OF DISCUSSION

DR. GUY W. HORSLEY, Richmond, Va.: Dr. Koontz has fallen into the commonest fallacy of all writers on inguinal hernia repair which has resulted in much confusion among surgeons; that is, he has discussed indirect and direct hernia as one. They are quite different conditions and are alike only in that they involve the same structures. The operative repair of an indirect hernia is usually quite different from the operative repair of a direct hernia. The origin of these hernias is different. The indirect hernia in general is congenital in origin; the sac persists from infancy and, gradually increasing in size, separates the inguinal structures. The direct hernia is primarily due to weakness of the structures and strain over a long period, and the sac is secondary to this weakness. When one is operating on an indirect hernia, the most important procedure is the total removal of the sac. Dr. Koontz has stated that this is axiomatic and requires no discussion. Unfortunately, the bulk of literature deals with methods of repair of the inguinal canal and the fundamental step of treatment of the sac becomes obscured and at times forgotten. I am convinced that complete removal of the sac is all that is necessary to cure what Dr. Koontz calls the "run-of-the-mine primary indirect inguinal hernia." This is all that I do in infants and young children, unless the sac is so large that it has displaced the inguinal structures. In the operations for direct inguinal hernia the fundamentals are reversed. Here the repair of damaged and weakened structures is of primary importance and removal of the sac or bulge is secondary. In some of the smaller bulges it may not be necessary to open the peritoneum. Reconstruction of the transversalis fascia is most important, and over this the conjoined tendon and muscles should be sutured without tension, as described by Dr. Koontz. Except in infants and children in whom repair of the inguinal canal is not necessary, I routinely use a modified Bassini technic. This modification is to suture, whenever possible, the transversalis fascia first before suturing the conjoined tendon and the internal oblique muscle to Poupart's ligament. I do not subscribe to any fixed or routine technic for all cases but believe that one has to individualize the operation to fit the specific patient. In any technic one must follow the principles which have just been so well laid down by Dr. Koontz, such as the removal of all areolar tissue on structures to be sutured together, avoidance of tension and the use of fine, nonabsorbable sutures.

DR. BRADLEY L. COLEY, New York: It was gratifying to hear Dr. Koontz's presentation on inguinal hernia. Many persons adopt an attitude of complacency and satisfaction with the results of surgical measures for correction of this condition—one that is numerically of great importance. Actually, the end results of surgical treatment are still far from satisfactory despite the gradual lowering of the recurrence rate as judged by statistics published by many of the large surgical clinics in this country. Dr. Koontz has summarized concisely the important basic types of operation. He has defined the two operations of Halsted which I, too, have found to be unfamiliar to many of the younger surgeons. Ferguson's operation is not widely employed today, although in young children it seems to me to be a useful and adequate procedure. Indeed, the Hamilton Russell operation, which is even simpler in that it consists solely in high ligation of the sac without suture of conjoined muscle to Poupart's ligament, will cure many of the congenital indirect hernias in early childhood. For adults, especially patients with large indirect sacs or with those which are direct in type, I am in accord with the trend toward the use of the Cooper ligament operation. However, the unmodified Bassini repair is undoubtedly the most widely used procedure and is on the whole a satisfactory method for uncomplicated indirect inguinal hernia. My objection to the technics which bring the cord into a subcutaneous position, e. g., Halsted I, lies in the fact that by this method the cord emerges directly through all the layers of the abdominal wall, and this tends to favor a protrusion at the internal ring, or a so-called indirect recurrence. As to the causes of recurrence, clean and sharp dissection will avoid interposition of areolar tissue between layers of the repair. Nonabsorbable suture material has decidedly lowered the recurrence rate by greatly reducing the incidence of infection. Avoidance of tension seems inescapably important. I am wholly convinced of the value of early ambulation if one insists that the patient ambulate and not vegetate in a chair. I do not allow chair-sitting until the patient has been up and walking for a week. Early ambulation means the evening of the day of operation, or, at the latest, the next morning. I support the belief that it is much easier to prevent a recurrence by the proper choice of an operation suited to the individual hernia than it is to cure the recurrence by a second or a third operation. I do not believe in a rigid, standardized technic for all inguinal hernia.

DR. LEIGH F. WATSON, Los Angeles: Dr. Koontz is to be congratulated on the thorough manner with which he has dealt with the problem of hernia and emphasized the value of the Halsted operation, which is probably the best for indirect inguinal hernia. Those of us who have attended his clinic have marveled at his skill and dexterity. He has presented an accurate picture of the development and merits of the various operations for inguinal hernia. In addition to the historical facts presented by Dr. Koontz, my observations are that at present the treatment of hernia is a subject of wide divergence of opinion and is likely to remain unsettled as long as statistics on recurrence from twenty-five leading clinics vary from zero to 30 per cent. Dissatisfaction will remain until the perfect operative technic is devised and universally adopted. Unfortunately, as stated by Dr. Koontz, there will still be the patient with deficient muscles and fascia and other handicaps to tax the skill and try the patience of the surgeon. In a series of 2,250 patients with inguinal hernia who came to me over the last five years, I found that there were 286 with one to four recurrences following operative correction elsewhere. A study of the case records of the 286 patients reveals that approximately 25 per cent of the hernias developed immediately after the operation; 28 per cent in the first six months; another 15 per cent in one to six months; 30 per cent in six months to five years; 15 per cent in five to ten years; 10 per cent in ten to twenty years, and 5 per cent in twenty to thirty years after operation. The percentage of recurrence in direct hernia operations is 10 to 20 per cent in the hands of the most experienced operators. Many surgeons report that the recurrence rate is between 25 and 50 per cent. The number of indirect inguinal hernias that recur after operative correction varies from 5 to 10 per cent, depending on the age of the patient and the choice of operation. Recurrence is lowest in patients between 10 and 45 years of age. After the Bassini operation, indirect inguinal hernias most frequently recur through the opening left for the cord; occasionally they come through the deep suture line just above the pubis, and rarely through the middle of the suture line or a weak spot in the muscles or fascia. The Cooper ligament operation has shown a lower percentage of recurrences than the inguinal ligament operation (Bassini) and is steadily supplanting the latter in popular favor among surgeons, although the Bassini procedure presents fewer technical difficulties.

DR. ROLAND I. GRAUSMAN, New York: I want to emphasize one point that Dr. Koontz made: with a large defect in the fascia and when the edges can be brought together only with great tension, tantalum mesh is of great value. In the last two years, I have had 4 cases in which tantalum mesh has been used with great success. I would like everyone present to consider using this method when he encounters a difficult or large recurrent hernia.

DR. AMOS R. KOONTZ, Baltimore: Dr. Horsley's remarks about the difference between indirect and direct hernias are certainly well taken. I had not the faintest notion of conveying the idea that I was trying to present the same method for both types of hernia. As a matter of fact, I was not discussing any method but was trying to present certain salient principles of hernia repair. The difference between the two types is well known. Indirect inguinal hernia is congenital, or at least considered so. I personally believe that direct hernias also are due to congenital weakness of the structures of Hesselbach's triangle. The method of repairing them should be different in many cases, and every hernia

should be treated as an individual problem and not repaired by any routine procedure. However, I do feel that for large indirect hernias which have caused atrophy of the surrounding tissues, the method of repair should be the same as that for direct hernias. The method of treating small inguinal hernias simply by removing the sac was initiated by Russell many years ago in Australia. One of his pupils, Craig, recently published an article in which he said that that simple operation must be supplemented by something else. His first supplemental method was implantation of phenol and olive oil in the exposed area of transversalis fascia. I will leave that with you for what it is worth. The second method was turning in the hernia sac and afterward suturing the edges. He made the statement that the sutures will not pull out because the tissues of transversalis fascia are very strong and will hold the sutures. I am certain that that statement is at variance with the experience of many surgeons in many cases in which it has been impossible to find any transversalis fascia at all. Dr. Coley objected to the Halsted operation in the transplantation of the cord subcutaneously. He said that putting both the internal and external ring over each other might tend to indirect recurrence. It might, of course, but I don't believe that it does in most instances, because it is well known that most recurrences are direct occurrences that occur close to the pubic bone. If the indirect sac is thoroughly taken away, one just doesn't get recurrences at the internal ring. I agree with everything Dr. Coley said about early ambulation.

ACUTE CRANIOCEREBRAL TRAUMA

Essential Considerations of Diagnosis and Treatment

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Theoretically, acute head injuries are within the domain of the neurosurgeon. The magnitude of the problem is such, however, that for practical reasons most such injuries cannot be treated by specialists in this field. They will probably remain, just as they are at this time, the responsibility of general surgeons and even of general practitioners.

Since this situation exists and since it is unlikely to be altered, its implications must be faced. The correct management of acute head injuries constitutes a real challenge to the whole medical profession at this time. Increasing industrialization and the increasing use of mechanical means of transport will add to the problem as time passes. It is, therefore, essential that the general surgeons and general practitioners who are called on to direct the management of these injuries comprehend the nature of the traumatic process, be able to make precise diagnoses, be prepared to administer appropriate emergency treatment, and, perhaps most important of all, be trained to recognize without delay the danger signals which indicate the need for the services of a neurosurgeon.

The current literature on head injuries is frequently confusing and contradictory. Furthermore, much of it is too highly technical to be of great value to any one but the trained neurosurgeon. The purpose of this communication is, therefore, to outline as simply as possible—even at the risk of occasionally seeming dogmatic—the essential considerations in the diagnosis and treatment of acute head injuries.

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ESTABLISHMENT OF A CLINICAL BASE LINE

The first consideration in the management of an acute head injury is the establishment of what might be termed a clinical base line, against which the patient's future course may be evaluated. The base line includes three factors: the vital signs, the level of consciousness and the state of the pupils.

The temperature, pulse, respiratory rate and blood pressure are determined and recorded as soon as the patient is seen. These vital signs furnish an invaluable index of the function of the medullary and midbrain centers. They are redetermined at brief, regular intervals, and nurses are warned that the physician in charge must be notified without delay of any consequential change in any of them.

The level of consciousness significantly influences both the prognosis and the therapy. It is best recorded on the basis of Botterell's [1] classification of coma, semicoma and confusion. Coma denotes a state of unconsciousness in which there is no response to any sort of stimulus. Semicoma denotes a state of unconsciousness in which the patient responds to such painful stimuli as deep supraorbital pressure. Confusion denotes a state of disturbed consciousness characterized by the inability to think clearly or to respond accurately to situational stimuli. The general levels of consciousness should be described in these terms, supplemented with whatever details further clarify the descriptions.

The state of the pupils is recorded in terms of size, reaction, and equality or inequality. Pupillary function is second in importance only to the state of consciousness in following the patient's progress.

DIAGNOSTIC CONSIDERATIONS

Nature of the Injury.—The exact site and extent of the injury furnish the first diagnostic information. All details should be recorded, including those of lacerations and contusions of the scalp. From the diagnostic standpoint, the extrusion of pulpified brain or of cerebrospinal fluid from a wound of the scalp indicates severe laceration of the dura mater and the cerebral tissue. The leakage of cerebrospinal fluid from the nose or ears is positive evidence of a fracture through the anterior or middle fossa, with laceration of the dura. If the supplemental otoscopic examination reveals a bluish discoloration of the tympanic membrane, it may be presumed that the fracture is through the middle fossa of the skull.

State of the Pupils.—The state of the pupils, in addition to serving as part of the clinical base line, is of great diagnostic significance. The following are the most important considerations:

1. Pupillary inequality associated with impairment of the light reflex as it applies to the dilated pupil may indicate any one of four possible pathologic processes: (1) extradural hemorrhage; (2) herniation of the temporal uncus through the tentorium; (3) tearing of the oculomotor nerve from its origin in the brain stem, and (4) direct injury of the nerve in the orbit with spicules of bone.

1. Botterell, E. H.: Personal communication to the authors.

2. The unilaterally dilated, fixed pupil is pathognomonic of an extradural hemorrhage, the lesion usually being on the same side as the altered pupil. Some observers have questioned the value of this localizing sign because it may be caused by lesions other than an extradural clot. We do not share this point of view. We cannot emphasize too strongly that, from a practical standpoint, lives will be saved if it is assumed that every patient with a unilaterally dilated, fixed pupil has an extradural clot until he is proved not to have one. An operation in such circumstances may be life saving; procrastination may be fatal. This teaching may have a taint of dogma, but the generalization is nonetheless sound that every physician called on to treat head injuries should accept the thesis that progressive unilateral dilatation of the pupil is pathognomonic of extradural hemorrhage and that he should act accordingly.

3. Small, contracted pupils (unless the patient has received morphine) indicate severe medullary damage. Fixed, dilated pupils usually indicate the terminal stages of brain injury. These two phenomena are always of serious significance.

4. External examination of the eyes should be supplemented with ophthalmoscopic examinations at regular intervals. Progressive choking of the optic disks indicates a severe degree of increase in the intracranial pressure. Unequivocal choking of the disks usually does not develop for several days, but venous engorgement, retinal hemorrhages, blurring of the disk margins and obliteration of the normal landmarks occur much earlier and are valuable indexes of the degree of intracranial tension.

Determination of Facial Nerve Function.—Determination of the function of the facial nerve is useful in the demonstration of hemiplegia or hemiparesis. The conscious patient can cooperate in the examination. If the patient is semicomatose or confused, grimacing may be stimulated with supraorbital pressure or with some other painful stimulus which will permit evaluation of the function of the facial muscles. If the patient is comatose, some reliance can be placed on the rule that the cheek on the paralyzed side puffs out with respiration more than the cheek on the nonparalyzed side.

Roentgenologic Examination.—Opinions differ rather widely as to the value of roentgenographic examination of the skull in the hours closely following a head injury. Our position is that clear roentgenograms are likely to be of diagnostic aid, but that the difficulty of obtaining them for a confused or disoriented patient far outweighs their possible value. Their chief usefulness is in the demonstration of depressed fractures of the skull or of linear fractures crossing the groove of the middle meningeal artery.

Lumbar Puncture.—Both the diagnostic and the therapeutic value of lumbar puncture in acute head traumas have been greatly overemphasized. Many observers [2] have advocated this measure as a valuable diagnostic adjunct, but lumbar puncture in the case of a restless, uncooperative patient is unlikely to result in inaccurate measurements and is frequently impractical as well. It is doubtful, too, even when there is no blocking of the cerebrospinal fluid pathways in the spinal axis, whether the pressure of the intraspinal fluid ever furnishes an accurate index of intracranial pressure. Kahn's [3] experimental studies support this point of view. When herniation of the brain substance has occurred at the incisura of the tentorium the pressure below the tentorium cannot be an index of the pressure above it, because the free flow of fluid through the incisura has been impeded. Under such circumstances, only measurement of the intraventricular fluid pressure can provide an accurate index of supratentorial pressure.

The dangers associated with lumbar puncture in acute head injuries furnish an additional reason for refraining from this method of diagnosis. The risks of its use in infratentorial mass lesions were clearly demonstrated by Harvey Cushing,[4] but the equally grave dangers associated with its use in supratentorial lesions are not fully appreciated, even by neurosurgeons. Swelling of the cerebral hemispheres as the result of venous stasis and cellular edema brings about an ideal set of physical conditions for herniation of the temporal uncus into the incisura of the tentorium. Furthermore, the sudden release of infratentorial pressure when lumbar puncture is performed aggravates the unnatural pressure relationship and should be considered a potential danger in precipitating or aggravating tentorial hernias.

NONSURGICAL THERAPY

Patients suffering from acute head injuries require careful individual treatment. Routine management according to an inflexible schedule is as useless as it is dangerous. Alert, watchful individualization is the basis of rational therapy. Moreover, since the patient's condition may vary from hour to hour, continuous, efficient nursing care is an essential part of his treatment.

The decision concerning the necessity for surgical intervention must be made promptly in every case. A voluminous literature dealing with conservative therapy in acute head injuries has appeared during the last decade, and there is no doubt that nonsurgical measures are adequate in most cases. Not more than 1 patient in every 5 needs surgical intervention. The identification of the 20 per cent of patients who need an operation is, however, often a perplexing matter; the experienced physician never lets himself forget the disaster that may follow if a lesion requiring an operation goes unrecognized.

The initial care of patients who need surgical intervention and of patients who can be treated conservatively is based on attention to the following points:

Provision of an Adequate Airway.—The first consideration in the management of a semiconscious or unconscious patient is the establishment of an unobstructed airway. The brain is extremely susceptible to anoxemia, and irreparable damage may result in a short time unless oxygen is provided and maintained in adequate supply.

2. (*a*) Fay, T.: The Treatment of Acute and Chronic Cases of Cerebral Trauma by Methods of Dehydration, Ann. Surg. **101**: 76-132 (Jan.) 1935. (*b*) Mock, H. E., and Mock, H. E., Jr.: Management of Skull Fractures and Brain Injuries, J. A. M. A. **120**: 498-505 (Oct. 17) 1942. (*c*) Owens, M. J.: The Diagnosis and Management of Acute Head Injuries, Indust. Med. **16**: 169-171 (April) 1947.

3. Kahn, A. J.: Effects of Variations in Intracranial Pressure, Arch. Neurol. & Psychiat. **51**: 508-527 (June) 1944; correction, ibid. **52**: 71 (July) 1944.

4. Cushing, H.: Study of a Series of Wounds Involving the Brain and Its Enveloping Structures, Brit. J. Surg. **5**: 558-684 (April) 1918.

Perhaps the simplest method of providing an immediate unobstructed airway is that first advocated by Coleman,[5] which has proved to be one of the most useful advances made in recent years in the management of head traumas. The patient is merely placed on his side with the head down, so that secretions from the trachea and nasopharynx drain through the mouth and nose by the force of gravity. If they are so tenacious that gravity alone is not sufficient to remove them, a soft rubber catheter is inserted into the air passage and is attached to a suction apparatus. The position is of particular value in the treatment of profoundly unconscious patients whose swallowing reflex has been abolished.

Once an adequate airway has been established, oxygen should be administered to every unconscious patient. Administration with a nasal catheter is satisfactory, but the use of a tent is preferable.

Indications of Shock.—Traumatic shock is so seldom present in cases of uncomplicated head injuries that a patient in a state of shock should be carefully examined for other possible injuries, such as a broken neck, a fractured femur or a ruptured viscus. Hemorrhagic shock, on the other hand, is not infrequently associated with extensive lacerations of the scalp which have not been sutured promptly.

Treatment of Restlessness.—Restlessness is often a disturbing early complication in acute head injuries. When it is of only mild degree, simple nursing measures are sufficient; when it is extreme, sedation must be employed. Paraldehyde, which may be given by mouth, by rectum or by vein, according to necessity in the particular case, is by far the safest and best of the sedative drugs. The barbiturates are likely to excite a restless patient rather than to quiet him, and morphine, at least in the conventional dosages, should be avoided because of its depressing effects on the respiratory centers. Physical restraint should be employed only as a last resort, since it is likely to make the patient combative and thus increase his restlessness.

Treatment of Hyperthermia.—Because the hypothalamic centers are peculiarly susceptible to trauma, elevations in temperature are frequent after head injuries. Temperatures up to 104 F. per rectum need cause no serious concern, but energetic efforts must be made to reduce temperatures above this level. The former custom of keeping the patient covered with blankets, no matter how high the temperature, is no longer acceptable. On the contrary, the first step in the management of hyperpyrexia is to remove all covering, sponge the body with tepid water or alcohol and direct a gentle breeze on the patient from one or more electric fans. In the most extreme cases, the body is also covered with wet towels. In addition to these physical measures, small doses of morphine sulfate (1/8 to 1½ grain [8 to 97 mg.]) given every two hours are sometimes effective in lowering high temperatures.

Maintenance of Fluid Balance.—The dehydration therapy [2a] which was so popular a decade ago in the management of head injuries has been almost universally discarded. Its rationale, which was to prevent cerebral edema, was faulty; cerebral edema, so far as is now known, is not directly related to the fluid balance, and dehydration is both ineffective and dangerous.[6]

The adult of average size must ingest or receive through other channels between 2,500 and 3,000 cc. of fluid every twenty-four hours if a normal state of hydration is to be maintained. An additional 1,000 to 1,500 cc. may be necessary if the weather is excessively hot or if the patient is extremely restless and irritable. This type of patient will dehydrate himself rapidly. Fluids are administered by vein for the first two or three days of unconsciousness and then, if the coma continues, are given through a nasal tube at six hour intervals. A nasal tube cannot be used, of course, if there is a leak of cerebrospinal fluid from the nose or nasopharynx. The best plan is to give 1,000 cc. of a 5 per cent solution of dextrose in isotonic sodium chloride solution, 1,000 cc. of a 5 per cent solution of dextrose in distilled water and 500 to 1,000 cc. of protein-containing fluid (amino acids) every twenty-four hours.

Maintenance of Nutrition.—Maintenance of adequate nutrition for the unconscious patient is always a serious problem, since protein deficiencies develop rapidly if unconsciousness persists more than a few days. A basic caloric and vitamin intake must be maintained throughout the illness by one means or another.

Maintenance of Oral Hygiene.—Any carelessness in respect to the oral hygiene of the unconscious patient may result in parotitis or a parotid abscess. Excessive dryness of the tongue and the oral mucosa, which is likely to occur because of mouth breathing, may lead to infection. The mouth, therefore, must be kept scrupulously clean, and the lips and the oral cavity must be swabbed frequently with mineral oil to prevent drying and cracking of the mucosa.

Maintenance of Urinary Function.—Urinary incontinence, which is always present in the case of an unconscious patient, presents a difficult problem which must be overcome. If it is neglected, bed sores develop and infection of the urinary tract results. If the patient is not too restless, soiling of the bed may be avoided by the simple expedient of placing a urinal between the patient's legs. If incontinence is continuous, drainage of the bladder must be instituted through an indwelling catheter. Infection of the urinary tract usually can be prevented by frequent irrigations of the bladder and the administration of one of the sulfonamide drugs, orally or through the nasal tube, in small doses.

Chemotherapy.—Every patient with a laceration of the scalp or a fracture involving the paranasal sinuses or the middle ear [3] should receive chemotherapy or antibiotic therapy, even in the absence of leakage of cerebrospinal fluid. Similar measures should be adopted in the treatment of all profoundly unconscious patients to reduce the risk of aspiration pneumonia. Unless there is a leak of cerebrospinal fluid, penicillin in the usual therapeutic dosages meets all the necessities of the case. If such a leak has occurred, penicillin therapy is supplemented with the administration of sulfadiazine (1 Gm.) every four hours. The latter drug, unlike penicillin, passes into the cerebrospinal fluid through the barrier of the choroid plexus in concentrations sufficient to make the development of meningitis unlikely.

5. Coleman, C. C.: The Management of Unconscious Patients with Special Reference to Posture in the Treatment, Virginia M. Monthly **61**: 270-276 (Aug.) 1934.

6. Browder, J.: Dangers in the Use of Hypertonic Solutions in the Treatment of Brain Injuries, Am. J. Surg. **8**: 1213-1217 (June) 1930.

SURGICAL THERAPY

Generally speaking, the following varieties of head traumas should always be treated surgically:

Gunshot and Missile Wounds of the Brain.—This type of head injury, while it is of the greatest importance in time of war, occurs so infrequently in civilian life that there is little justification for an extended discussion of it in the present paper. For full details concerning its management, the reader is referred to the recently published monograph by Matson,[7] which is both sound and comprehensive.

Depressed Fractures of the Skull.—A depressed fracture of the skull is likely to result whenever the head comes in contact with a rapidly moving object, whether large or small, such as a hammer, the butt of a pistol, a monkey wrench, a bottle or the hoof of an animal. The result of the contact is that the skull is bent inward until it literally breaks and a depressed or so-called eggshell fracture results. When the scalp remains intact, the fracture is described as simple. When the scalp is lacerated through the pericranium, the fracture is of the compound depressed type. Although depressed fractures are usually associated with localized lacerations or contusions of the brain, prolonged loss of consciousness is exceptional.

Most simple depressed fractures of the skull require surgical repair because of the underlying damage to the brain. When the indications for operation are not clearcut, electroencephalography may help to clarify the extent of the injury. Surgical repair is indicated when abnormal waves are recorded beneath the fracture site. When the tracings are normal, however, and the skull fragments are only slightly depressed, surgical intervention is not indicated.

All compound depressed fractures require surgical repair. Treatment is purely mechanical, and the order of operation is from the exterior of the skull to the interior. Thorough débridement of the scalp wound is carried out, the broken pieces of bone are removed, the torn meninges are carefully repaired and all contused, devitalized cerebral tissue is cleanly removed by suction. It is essential that débridement be complete. If it is not, a corticomeningeal scar will form and, sooner or later, will act as an epileptogenic focus. Patients with depressed fractures of the skull, in fact, are always potential victims of active or traumatic epilepsy. The repair of the dura mater is an exceedingly important step. Unless a tight closure can be accomplished by approximation of the torn edges, a dural graft of the pericranium should be employed. As to the bony defect, the former practice of preserving all bone fragments and attempting to prop them against each other to achieve repair is no longer recommended. The best current practice is to repair the defect primarily or secondarily with a tantalum plate or with one of the acrylic resins. Cranioplasty by this technic proved highly satisfactory in thousands of cases of combat-incurred head injuries in World War II, and the method is rapidly replacing the bone graft technics formerly employed in civilian clinics.

Extradural Hemorrhage.—Of all the serious complications of acute head injuries, extradural hemorrhage should be the easiest to recognize and the most satisfactory to treat. It is nothing short of astonishing, therefore, to find that in most large clinics the mortality for this condition ranges from 30 to 50 per cent. Three reasons for these almost incredibly poor results are (1) diagnostic failure, (2) delay in resorting to surgery when the presence of such a lesion is suspected and (3) the frequency of severe associated injuries. The first two of these causes are readily preventable, even though the third is usually beyond the power of the physician to alter.

The syndrome of extradural hematoma usually takes a classic form. The patient is dazed or rendered completely unconscious for a few minutes by the blow he has sustained. He may then complain of a headache, nausea or a feeling of faintness, but typically he becomes rational for a time. This is the so-called lucid interval, which lasts for an hour or more. At the end of this time, the patient's mental faculties become dulled, he begins to feel drowsy, he falls asleep and sleep merges imperceptibly into coma. The breathing is stertorous, the pulse is slowed and the blood pressure is elevated.

The physical examination reveals an area of puffiness or a mild induration of the scalp and the temporal muscle at the site of the injury. The pupil on the injured side is usually larger than normal and, as previously noted, may be widely dilated and fixed. The contralateral leg and arm are likely to be weak, and a positive Babinski sign may be elicited. Jacksonian convulsions occasionally occur. When roentgenograms have been made immediately after the injury, they usually reveal a linear fracture in the temporal fossa, with the fracture line usually passing across the middle meningeal groove.

In a minority of cases, the classic syndrome just described is not present. The patient may never regain consciousness after the blow, usually because a severe brain injury is also present. Sometimes the lucid interval may be a matter of days instead of hours. Sometimes the unilateral dilatation and fixation of the pupil are absent, especially when the bleeding comes from the anterior or posterior meningeal vessels. An extradural hematoma usually arises from a lacerated area of the middle meningeal artery, but any of the meningeal vessels or even the dural sinuses may be torn, in which case the extradural clot lies over either the cerebral hemispheres or the cerebellum. These and other variations occur in certain cases of extradural hemorrhage, but the classic syndrome is more constant and the pattern and sequence of symptoms are more exact than in most clinical entities.

The mortality in extradural hemorrhage, as already intimated, will not improve until earlier diagnosis becomes the rule and until skilled surgical intervention can be undertaken as soon as the diagnosis has been made or is suspected. Earlier diagnosis, however, is not likely to come to pass until all physicians—including those who care for patients with acute head injuries only occasionally—become familiar with the early symptoms and signs of this complication. Furthermore, while it may be impractical to hospitalize every patient who has been rendered unconscious for a brief period of time by a blow, one simple precaution is perfectly practical: The attending physician can sit down with a responsible member of the family, painstakingly explain to him the early prodromal signs of this dreaded complication and instruct him to rouse the patient at least every two hours during the first twelve hours after injury in order to distinguish between normal sleep and pathologic coma.

7. Matson, D. D.: The Treatment of Acute Craniocerebral Injuries Due to Missiles, Springfield, Ill., Charles C Thomas, Publisher, 1948.

Earlier treatment must follow earlier diagnosis. Extradural hemorrhage is not a condition in which the attending surgeon can tell the house staff to watch the patient carefully until he sees him early next morning. When the classic symptoms and signs are present, operation must be performed without delay. When the signs are suggestive but not positive, the policy should be to carry out a burr hole exploration on the slightest indication of deterioration in the patient's condition.

Acute Subdural Hematoma and Intracerebral Hematoma.—Injuries of the brain sufficient to produce laceration and hemorrhage of the cerebral substance are relatively frequent. Usually they are of the contrecoup type. They are likely to lie almost entirely in the frontal and temporal lobes. The subdural hematoma, which probably represents only a small part of the lesion, is relatively small. However, when intracerebral bleeding occurs the hemorrhage may be massive and the blood may be either clotted or laked.

It is often impossible to distinguish before operation among extradural, subdural and intracerebral hematomas, but the differentiation is merely academic since all three lesions demand prompt surgical exploration. Intracerebral bleeding should be suspected and burr hole exploration should be carried out without delay in all cases of head injuries in which progressively deepening coma and changes in the vital signs suggestive of increased intracranial pressure or evidence of progressive neurologic dysfunction are noted. Unfortunately, patients with lesions of this sort are often moribund when they are first seen.

Chronic Subdural Hematoma.—Although it is customary to classify subdural hematomas in the acute and chronic categories, the classification is not particularly satisfactory. Acute subdural hematomas are usually associated with cerebral laceration and considerable brain injury, whereas chronic hematomas may result from minimal trauma and may be associated with little or no actual cerebral damage. The slow progression of the chronic variety is its distinguishing characteristic. The pathologic process is basically a tearing of the cortical veins which extend from the cerebral cortex to the sagittal sinus. Pudenz and Shelden,[8] who studied the effect of subconcussive blows and gunshot wounds of the head on the brains of macaque monkeys fitted with lucite® calvariae, satisfied themselves that this was what occurred after such injuries. It therefore seems reasonable to assume that any condition which produces an unusually wide gap between the sagittal sinus and the leptomeningeal attachment of these veins will add to the likelihood of such a lesion. Cortical atrophy as the result of alcoholism is one such condition, and the vascular changes of old age are another.

Clinically, it is often impossible to distinguish chronic subdural hematoma from brain tumor because of the similarity of the symptoms. Further confusion is introduced by the fact that the causative trauma is often so inconsequential that it is entirely overlooked by the patient and his family. The major presenting symptoms are headaches of increasing severity and mental dulness progressing to somnolence, sometimes followed by convulsions or hemiparesis. The signs are those associated with increased intracranial pressure, such as papilledema, slowing of the pulse rate and a gradual increase in the systolic blood pressure. The lumbar spinal fluid pressure is likely to be increased, and the fluid is characteristically slightly xanthochromic.

Bilateral burr holes should be placed in the superior temporal regions whenever the presence of a subdural hematoma is suspected. A bluish discoloration of the dura mater is a characteristic finding. Evacuation of the hematoma with thorough lavage of the interior of the limiting membrane is usually all that is required to effect a cure. If, as occasionally happens, the hematoma consists chiefly of clots and cannot, therefore, be removed through exploratory burr holes, an osteoplastic bone flap offers the only solution to the problem. It is impossible to overemphasize the fact that subdural hematoma is frequently bilateral and that the exploratory burr holes must be placed in both temporal regions whenever its presence is suspected.

Subdural Hygroma.—Subdural hygroma is presumably caused by a small tear in the arachnoid which, by a sort of ball valve action, permits cerebrospinal fluid to escape into the subdural space while preventing it from returning to the subarachnoid space. Restlessness, coughing, sneezing or convulsive movements of any sort will force fluid in relatively large quantities into the subdural space, even though the tear in the arachnoid may be very small.

The clinical symptoms of subdural hygroma are practically identical with those of subdural hematoma. Since the lesion may occur in all grades of head injuries, the symptoms vary from patient to patient. The development of a hygroma should always be suspected when an otherwise smooth convalescence is interrupted by signs of increasing intracranial pressure. The treatment is the same as that for chronic subdural hematoma, that is, burr hole exploration.

Persistent Cerebrospinal Fluid Rhinorrhea.—Rhinorrhea, as previously mentioned, occurs as a result of dural laceration associated with fracture of the skull through the anterior fossa. It is usually unilateral. When the patient tilts his head forward the nature of the condition is obvious, for clear fluid drips drop by drop from the nose. Adequate visualization of the anterior fossa by roentgenographic means is not easy, but the fracture can usually be demonstrated if stereoscopic views are made through the optic foramen.

Rhinorrhea following head injuries usually ceases spontaneously within seven to ten days. If it persists beyond this time, surgical intervention is indicated. The repair is accomplished through frontal osteoplastic flaps. If the fracture site can be lateralized, a small frontal bone flap is sufficient; otherwise, a bilateral flap is required. The anterior fossa should be explored extradurally until the fracture site is identified. It is frequently impossible, however, to demonstrate the dural laceration accurately, and even when it has been demonstrated it may be impossible to suture the tear without excessive damage to the frontal lobe. Fortunately, suture is not necessary. All that is usually required to effect a cure is to place a large graft of fascia lata, secured from the thigh, over the anterior fossa, so that the fracture is completely separated from the dural laceration. Sulfadiazine and penicillin should be given prophylactically, in large doses, before and after the operation.

8. Pudenz, R. H., and Shelden, C. H.: Lucite Calvarium—A Method for Direct Observation of the Brain: Cranial Trauma and Brain Movement, J. Neurosurg. 3: 487-505 (Nov.) 1946.

Tentorial Herniation.—Decerebrate rigidity, the result of a mass cerebral lesion which produces herniation of the tentorial brain stem, may occur whenever the intracranial tension above the tentorium is greater than the pressure below it. Such herniations are particularly likely to occur when the increase of pressure is rapid. They are frequent complications in extradural and subdural hematomas, intracerebral hemorrhage and cerebral edema.

Whatever the cause, tentorial herniation is a serious complication, the most effective treatment for which has never been fully established. When a mass lesion is present at operation and can be excised, pressure relationships are soon equalized and the herniation reduces itself spontaneously. A satisfactory method of management is yet to be agreed on for a mass lesion in one temporal or frontal lobe associated with unilateral cerebral swelling. Scheinker [9] suggested two corrective measures, ventricular puncture and slitting of the free edge of the tentorium, but the former of these procedures is of doubtful effectiveness, especially when the ventricle is small, and the latter is of such magnitude that it could scarcely be undertaken in the case of a desperately ill patient. Vincent, LeBeau and Guiot [10] reported that, in some of their cases, immediate improvement followed manual reduction of the uncal herniation through a temporal approach. The temporal lobe was gently elevated until the tentorial notch was reached, after which the herniated convolution was reduced manually and lifted upward and backward.

In our own opinion, the Botterell method [1] represents the most important contribution which has yet been made to the management of tentorial herniations. It is, in effect, internal decompression carried out by removal by suction of the pulpified brain in the temporal or frontal area, with the objective of discouraging cerebral swelling by the elimination of useless cerebral tissue. Since the approach is on the inferior and medial surface of the temporal lobe, there is practically no risk of sacrificing centers of vital cortical function. Botterell's method seems particularly logical because the areas of localized damage in the brain are so often associated with intracerebral accumulations of blood. His technic not only affords the most accessible approach to the intracerebral clots and permits removal of damaged brain tissue but also permits control of all bleeding vessels in the immediate vicinity.

Since the temporal lobes are most frequently involved in tentorial herniations, they should be investigated first. If intracranial tension is still high after the traumatized area has been adequately dealt with, the traumatized frontal pole should be similarly investigated.

Internal decompression by the Botterell method should be considered in all cases in which the patients show progressive deterioration from strangulation of the brain stem. The operation, however, is of such magnitude that it should not be attempted unless there are available all modern neurosurgical facilities to effect hemostasis.

SUMMARY AND CONCLUSIONS

The incidence of acute head injuries is so high that as a practical matter their treatment in most cases must be undertaken by physicians who are not trained neurosurgeons. This is a safe practice if the fundamental facts of diagnosis and treatment are clearly understood and if the circumstances are recognized under which the services of a specialist are required.

The diagnosis of acute head injuries is discussed with special reference to the prompt establishment of the so-called clinical base line, and the important considerations in treatment are outlined. Careful, unremitting observation is the basis of all therapy. Operation is not required in more than 1 of every 5 cases of acute head injuries, but it is essential that the decision for or against surgical intervention be made promptly, with full knowledge and evaluation of all the facts of the case.

The mortality in acute head injuries will be greatly reduced if the basic data set forth in this communication are generally appreciated. This is particularly true in respect to such complications as extradural hematoma, which now carries an almost incredibly high death rate because of diagnostic failure and delay in therapy.

9. Scheinker, I. M.: Neurosurgical Pathology, Springfield, Ill., Charles C Thomas, Publisher, 1948.
10. Vincent, C.; LeBeau, J., and Guiot, G.: Brain Edema in Neurosurgery, Proc. Roy. Soc. Med. **40**: 689-694 (Oct.) 1947.

ABSTRACT OF DISCUSSION

Dr. Barnes Woodhall, Durham, N. C.: Physiologists have learned a good deal in recent years about the reaction of the brain to acute injury. These studies have ranged from direct observation of the living brain under the lucite® calvarium to microsecond roentgen ray studies of the living brain penetrated by a gunshot wound. The task of the neurosurgeon is threefold: to apply results of these physiologic studies to the benefit of the individual patient; to delineate as accurately as possible those clinical conditions, like that of extradural hematoma, that are amenable to surgical treatment and to disseminate pertinent information concerning acute head injuries to physicians who must necessarily encounter and treat such patients as part of their emergency practice. Dr. Spurling has distilled into one manuscript his knowledge of acute head trauma derived from extensive civilian and military experience. I should like to point out that the existing problem of head injury goes far beyond that of a simple professional one and enters the domain of what might be termed preventive neurosurgery. In the past, surgical specialists have invaded this field to some degree. Based on ample physiologic evidence, Cairns developed a helmet for motorcyclists to safely decelerate the head in accidents. Loyal Davis devised a similar helmet for aviators. The late Dr. Dandy placed a metal plate in the caps of baseball players, and I believe that it was a surgeon who pointed out that a straight automobile handle was a formidable weapon when it struck the brain. Perhaps more can be accomplished in the field of industrial medicine, in which head injuries comprise 7 per cent of compensable injuries. According to an editorial in the May 28, 1949 issue of The Journal (p. 408), 100,000 accidental deaths occur yearly, with over half of these deaths occurring instantaneously or within twenty-four hours of injury. In children in the age groups from 4 to 14 years violent and accidental death represents the number one cause of mortality. Valid statistics do not exist that describe the influence of head injury in this tragic picture as they do, for instance, in the case of burns. However, it is valid to assume that since a high proportion of deaths are due to falls and motor vehicle-pedestrian accidents, damage to the brain is a significant factor. The first step in preventive neurosurgery as it relates to head trauma should therefore be a more accurate analysis than exists today of the forces and situations by and in which these injuries occur. Such a situational study in the case of children is now being conducted in my state, and it is planned to publish it in the near future.

Physiology of the Spinal Cord.—The contributions of Riddoch, Holmes and Head to the physiology of the spinal cord, which resulted from their meticulous study of the relatively few patients who survived following injury to the spinal cord in World War I, are unequaled in clinical observation.—Loyal Davis, M.D., *Surgery, Gynecology and Obstetrics*, July 1949.

TRIHEXYPHENIDYL

Evaluation of the New Agent in the Treatment of Parkinsonism

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This paper relates the experience of my colleagues and myself using the new antispasmodic compound trihexyphenidyl (artane,® 3-[1-piperidyl]-1-phenyl-1-cyclohexyl-1-propanol hydrochloride [1]) in the treatment of parkinsonism and several of the related disorders of movement. The trial of a new treatment of an old disease calls to mind a recent statement of A. C. Ivy,[2] who commented, "The physician practices medicine today, and because the response of different patients to the same therapy will always vary to some extent, the physician will always practice medicine on his patient. No physician can honestly guarantee that he will cure a disease or that his treatment will not cause undesirable symptoms or temporary discomfort."

Faced with the present lack of knowledge regarding the specific cause of parkinsonism, spasmodic torticollis, blepharospasm and other of the disabling disorders of movement, what should be the physician's therapeutic goal? In the belief that each of the diseases forming this group is organically derived in most instances, treatment is directed toward those symptoms which are most distressing and most common. These are generalized weakness with easy fatigability, muscular rigidity with cramps, soreness and aching, tremor and the loss of facility in dressing, eating, walking, talking and writing. Less troublesome subjectively, but noticed by associates, are the loss of facial expression and associated movements.

It is not known whether symptomatic improvement alters the course of the pathologic process underlying this group of diseases, but that would seem unlikely. However, the maintenance of morale that accompanies prolongation of symptomatic improvement probably postpones the time when these patients become hopelessly crippled and bedridden. Thus, if it is assumed that the time span of the degenerative process is reasonably predetermined in any individual case, the physician may suggest that purely emendatory therapy may lengthen the active life of the afflicted person while shortening the terminal dependent stage.

Regardless of the medicinal agent which the physician finds useful in parkinsonism, he should not forget to help the patient with the latter's emotional difficulties. This psychotherapy may mean nothing more than reassurance, sincere interest in solving the patient's problems and encouragement at the time of routine visits. Many of the patients need objective counseling regarding occupational adjustments as progressive disability necessitates curtailment of activities. The patient whose occupational duties cause severe nervous tension and accentuation of parkinsonian symptoms will do better if given less responsibility, often in a less public position.

Physical therapy should be used as needed and frequently is a useful adjuvant. Mild massage, heat and directed exercises, given once or twice weekly, may reduce muscle soreness and relax rigidity. Regular visits to the physiatrist afford continuity of therapeutic regimen and reenforce the physician's attempt to improve morale.

The practitioner who presumes to test a new drug, especially in parkinsonism, should maintain critical objectivity and avoid any suggestion that he is fostering the new product. One's natural desire to encourage chronically ill patients plus the tendency of these patients to grasp at any straw makes such objectivity difficult. The signs and symptoms of patients suffering from parkinsonism and the related disorders fluctuate with the patient's mood, with his general physical status, with exertion, with the environmental temperature and with his confidence (often sanguine expectation) regarding the physician. This variability of parkinsonian symptoms makes objective appraisal of the patient's condition, at any given moment, of little value. These difficulties have been considered by others [3] in testing new preparations in parkinsonism and have led to their conclusion that the estimation of the drug's effect on the carrying out of the routine daily "chores of life" by the patient and by relatives is a more reliable index of effectiveness than purely objective tests.

For the aforementioned reasons, no serious attempt was made to measure objectively the effect of medication on the patients, observations of whom formed the basis for this paper. Although the emotional tonic of a new remedy may temporarily improve parkinsonian symptoms, results are best evaluated in patients who have tried the standard correctives and who are observed while they are taking the trial preparation for several months or longer. Few of the patients of the series about to be described were local residents; thus it was necessary for us to depend on correspondence with the patient, his family and his home doctor. In many cases, however, both local and out of town patients have returned at regular intervals for reexamination, permitting firsthand observation. Although such personal visits usually added little other than a more lucid account of the patient's reactions to the drug, the examining physician at times noted increased ease in the patient's talking, walking and getting about generally. The type of evidence which has seemed to me to be of greatest value is that presented by the intelligent and cooperative patient who has had parkinsonism for many years and who has tried all of the standard remedies. If this patient experiments with trihexyphenidyl (artane®), diphenhydramine hydrochloride (benadryl hydrochloride®), amphetamine (benzedrine®), mixed atropine alkaloids (vinobel,® a tablet containing the alkaloids of belladonna root obtained by extracting with wine; rabellon® (a tablet containing alkaloids of belladonna, or Bulgarian belladonna) and other remedies, and finally, after a year's trial, tells me that trihexyphenidyl gives him equal or greater relief with fewer disagreeable side effects than does any of the other preparations, I accept this as evidence favoring this compound for this particular patient. Usually in such cases I have not been able to detect any appreciable change in the patient's physical status, although during the first few weeks that the patient receives the new antispasmodic, as is the case with other of the agents used for these disorders, one will note decided improve-

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Read before the Section on Nervous and Mental Diseases at the Ninety-Eighth Annual Session of the American Medical Association, Atlantic City, N. J., June 9, 1949.

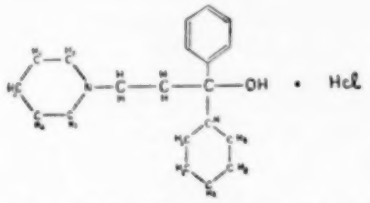
1. Artane® is manufactured by Lederle Laboratories, Division American Cyanamid Company. The author had the cooperation of Dr. G. W. Clark and associates, of that company, during the trial of this compound.

2. Ivy, A. C.: The History and Ethics of the Use of Human Subjects in Medical Experiments, Science (n. s.) **108:** 1-5 (July 2) 1948.

3. Schwab, R. S., and Leigh, D.: Parpanit in the Treatment of Parkinson's Disease, J. A. M. A. **139:** 629-634 (March 5) 1949.

ment objectively in all of the patient's activities. Occasionally, much of this objective improvement is maintained for an indefinite period.

Trihexyphenidyl (artane,® or 3-[1-piperidyl]-1-phenyl-1-cyclohexyl-1-propanol hydrochloride) is a synthetic antispasmodic that has the following structural formula:



Chemical formula of trihexyphenidyl (artane,® or 3-[1-piperidyl]-1-phenyl-1-cyclohexyl-1-propanol hydrochloride).

Its experimental pharmacologic aspects have been reported on, and additional studies [4] are being made. No evidence of local irritation resulting from oral administration has been noted. The compound has some mydriatic activity and some antisialogogue action. It is antispasmodic on isolated intestinal strips and in dogs with isolated Thiry-Vella intestinal loops. This antispasmodic activity probably accounts for the occasional brief period of nausea which some patients note after each dose. No effect on blood pressure has been noted experimentally except when it is given intravenously to etherized dogs. In these animals there is slight depressor action. Experimental and clinical evidence suggests that excretion is fairly rapid, with no tendency toward accumulation in the body. Similar studies have revealed no evidence of damage to liver, kidneys or hemopoietic organs, nor has any evidence of damage to the reproductive organs appeared. In general, the reactions of the compound resemble those of atropine. The mode and the site of the action bringing about improvement in parkinsonian symptoms are unknown.

MATERIAL AND METHODS

Trihexyphenidyl has been administered by my colleagues and me to more than 150 patients for varying periods during the past eighteen months. One hundred and four of these patients have been observed adequately to justify inclusion in this report. Of the 35 females and 69 males in the group, 86 had parkinsonism. Of these 86, 17 gave a definite history of previous encephalitis, leaving 69 who had idiopathic parkinsonism. Because of the difficulty in differentiating with certainty between the so-called paralysis agitans or idiopathic parkinsonism and the arteriosclerotic type, and because of the uncertainty of some neuropathologists as to whether purely vascular lesions, per se, are responsible for the neuronal degeneration seen in many of the so-called arteriosclerotic group, no attempt has been made to separate and label the older group of patients in this series as arteriosclerotic. Nine patients had spasmodic torticollis, 4 had facial spasm, 1 had torsion spasm and 4 had indeterminate, non specific disorders of movement. In 2 of the 4 patients with facial spasm, the muscular spasms seemed to be limited to the eyelids (blepharospasm). Of the entire group, 31 patients had had symptoms relating to their chief complaint for two years or less, 26 for three to five years, 26 for six to ten years, 9 for eleven to twenty-five years, and the remaining patients had noted symptoms for more than twenty-five years.

Patients in this series varied in age from 12 to 78. Five were in the third decade of life, 8 in the fourth, 25 in the fifth, 33 in the sixth, 29 in the seventh and 3 were more than 70 years of age.

Twenty-two patients have received trihexyphenidyl for one to three months, 29 patients for four to six months, 32 for seven to nine months, 10 for ten to twelve months, and 11 for longer than twelve months. Of the entire group 60 had received one or more of the belladonna alkaloids previously.

With few exceptions the patients in this series were given complete general physical and neurologic examinations, including routine laboratory studies, prior to beginning the use of trihexyphenidyl. In 64 cases, complete blood counts and urinalyses were made after thirty or more days of this therapy. The patient was requested to send a detailed report of his condition at regular intervals, usually at the time he wrote for more of the compound. In many cases the family physician would send his estimation of the patient's condition with his report of the laboratory data. Often a review of the patient's condition was sent by a friend or a relative. In the analysis of results, the patients who continued to request additional trihexyphenidyl and who stated that they had been improved or that they preferred this to previous medication were classed as benefited. Such symptomatic relief varied considerably from patient to patient, and typical reports are given later in this paper.

The initial dose of trihexyphenidyl is 1 mg. four times a day, given before meals and at bedtime. After several days, when it becomes obvious that the patient is not sensitive to the drug and is not experiencing disagreeable side reactions, the dose is gradually increased, by 1 mg. per day, to 2 mg. four times a day. The average dose is 8 mg. a day.

An occasional patient will obtain sufficient benefit from a smaller dose, and a few patients are unable to tolerate more than 3 or 4 mg. a day. Many patients, however, and especially the patient with long-standing parkinsonism who has been taking large doses of scopolamine or stramonium, may take much more than 8 mg. per day. The largest dose was being taken by a patient with postencephalitic parkinsonism of eighteen years' duration; he tolerated eighteen 2 mg. tablets a day. Adjuvant medication will be mentioned later.

RESULTS

Of the entire group of 104 patients, 80 (77 per cent) have been sufficiently helped by trihexyphenidyl to wish to continue with it. Although certain of these patients did not notice any great change in parkinsonian symptoms while they were undergoing this medication as compared with previous medication, they often preferred the new antispasmodic because of the absence of or decrease in disagreeable side reactions. Fifty-three of this number have been taking the compound for longer than six months. Fifteen patients (14 per cent) did not notice sufficient alteration in their condition to justify continuing the use of trihexyphenidyl. Nine patients (9 per cent) preferred other medication or were made worse; of these 9 patients, 4 (4 per cent of the group of 104 patients) had severe toxic side reactions.

Of the group of 69 patients with idiopathic parkinsonism, 42 (61 per cent) were unaware of any disagreeable side reactions resulting from trihexyphenidyl. In this group 53 (77 per cent) were benefited by the drug, 9 (13 per cent) noticed no improvement or preferred other drugs, and 7 (10 per cent) were made worse. In 4 of the 7 who were made worse, trihexyphenidyl produced severe toxic reactions, which will be described later in this paper.

As to postencephalitic parkinsonism, 12 (71 per cent) of 17 patients appeared to be helped by trihexyphenidyl, 3 (18 per cent) were not benefited and 1 (6 per cent) was made worse. Nine (53 per cent) noted no unpleasant symptoms from the compound, per se.

Nine patients with spasmodic torticollis have been given trihexyphenidyl. Of these, 5 (56 per cent) have derived sufficient subjective relief to wish to continue use of the drug, 3 (33 per cent) noticed no help and

4. Cunningham, R. W., and others: The Pharmacology of 3-(N-Piperidyl)-1-Phenyl-1-Cyclohexyl-1-Propanol HCl (Artane) and Related Compounds; New Antispasmodic Agents, J. Pharmacol. & Exper. Therap. **96**: 151 (June) 1949.

1 (11 per cent) was made worse. Most of this group have received the drug for three to six months, but one of these patients was the first to try it at the clinic and has taken it since December 1947. Although there was much to suggest a psychogenic basis for this patient's symptoms, she has appeared to obtain greater consistent relief from trihexyphenidyl than from any other form of treatment, including psychotherapy. Six (67 per cent) of these 9 patients noted no unpleasant symptoms as a result of the use of trihexyphenidyl.

Four patients with facial spasm, in 2 of whom the spasms appeared to be limited to the orbicularis oculi muscles, were given trihexyphenidyl. All of this group showed marked initial improvement, both subjectively and objectively; none of these patients has noticed disagreeable side reactions. Two showed marked improvement during the first three days of the new therapy but reverted to their premedication status when a placebo was substituted. Improvement was again noted when trihexyphenidyl therapy was resumed. Two have written that their initial improvement has decreased but that they wish to continue taking the drug. The other two patients in this group have discontinued its use because of a loss of its original effectiveness.

Trihexyphenidyl has been given to 4 patients with nonspecific disorders of movement. Tremor and choreoathetotic movements were present, presumably on a degenerative basis, but the symptoms could not be fitted into any of the recognizable syndromes. Each of these patients has continued to ask for the compound by letter and has maintained that it is of value in his condition although no objective evidence of significant improvement has been noted.

The 1 patient with torsion spasm has appeared to derive some benefit from trihexyphenidyl; her case history is summarized later.

Trihexyphenidyl appears to help primarily by relaxing rigid muscles. Patients state that they feel more "limber" and are able to move about more readily than previously. This improvement is usually manifested in dressing, eating, writing and in the performance of other daily tasks. Typical references to such benefit were: "I can now feed myself," "I wrote my first letter in several years," "I can get out of chairs much more quickly," "I am now dressing myself in half the time it used to take," and "I am now able to mix my own drinks." Objective evidence of decreased muscular tone is usually evident as improvement of gait, speech, writing, finger wiggle, toe tap and ability to get on and off the examination table. Approximately 75 per cent of this series noted a decrease of rigidity.

In over 50 per cent of our patients tremor was reduced by trihexyphenidyl. However, I know of no clue which will enable one to predict what effect it will have on this disturbance. It would seem to have least effect on senile tremors, and I would not recommend it for the senile group. In some patients who have shown marked rigidity, a latent tremor may appear more noticeable after trihexyphenidyl therapy is begun.

Trihexyphenidyl has less antisialogogic effect than drugs of the belladonna series. Thus only 11 per cent of this group complained of unpleasant dryness of the mouth with therapeutic doses. However, there is sufficient antisialogogic response to prove of help in cases of excessive salivation, and when this symptom is prominent, as in certain postencephalitic patients, additional antisialogogic effect may be desired and obtained by the adjuvant use of small doses of atropine.

Although an occasional patient will note a mild sedative effect with trihexyphenidyl, more commonly patients mention an excitatory response, with improvement in mental clarity. This stimulative reaction may be of sufficient magnitude to cause unpleasant nervousness or "jitteriness," as noted later. Most patients, however, appear to feel better when taking the new drug than when taking the belladonna alkaloids. This feeling of well-being is difficult to describe or analyze but has been mentioned sufficiently often by various patients to deserve comment.

Similar improvement was noted in the symptoms of parkinsonism by Doshay and Constable [5] after administering trihexyphenidyl to more than 200 patients.

TOXICITY AND SIDE REACTIONS

Trihexyphenidyl should be given in small doses initially and the dosage gradually increased until the patient obtains optimal benefit. If this procedure is employed, more than half of the patients will notice no side reactions. The drug need not be given to the point where toxic symptoms appear in order to obtain definite benefit, as is usually the case with the belladonna alkaloids. The disagreeable side reactions most commonly noted are dryness of the mouth (11 per cent), occasional sensation of nausea beginning about fifteen minutes after taking the drug and lasting for several minutes (11 per cent), sensation of lightheadedness felt for a few minutes early in the period of absorption of the drug (10 per cent), occasional sensation of "jitteriness" (6 per cent) and occasional blurring of vision (6 per cent). Other symptoms which individual patients have noted and attributed to the drug are tinnitus, tightness in the head, increase in tremor and soreness of the mouth. In addition, several patients have noted a mild diuresis as a result of taking the drug.

In 4 patients the toxic effects were serious enough to require immediate discontinuance of the use of trihexyphenidyl. Two of these patients experienced acute confusional reactions with delirium. Their mental confusion disappeared immediately after the drug was withdrawn. The third patient became extremely nervous and agitated until the drug was stopped. The fourth patient experienced acute "dizziness" with nausea and vomiting. Thus, nearly 4 per cent of the patients were unable to take the drug because of undue sensitivity. Occasionally, I have found it possible to overcome what appeared to be specific sensitivity by restarting the use of trihexyphenidyl in a smaller dose and increasing very slowly until clinical improvement appeared.

A total of 64 patients have had one or more complete blood counts and urinalyses made on one or more occasions thirty days or longer after beginning the use of trihexyphenidyl. In no instance was an alteration shown in the blood count or abnormality in the results of urinalysis attributable to the drug. At the moment, therefore, there is no evidence that this compound has seriously damaged the blood-producing organs or the kidneys in this group of patients. However, inasmuch as it may be administered to individual

5. Doshay, L. J., and Constable, Kate: Artane Therapy for Parkinsonism: A Preliminary Study of Results in One Hundred and Seventeen Cases, J. A. M. A. **140**: 1317-1322 (Aug. 27) 1949.

patients for a period of five years or longer, only additional observation will make it possible to determine definitely whether there are serious side effects. A number of patients have discontinued the use of the drug, temporarily or permanently, after having taken it for one month or longer, without noting any evidence of addiction or habituation.

Canelis, Farnell and McGavack [6] have carried out periodic determinations of blood sugar, creatinine and urea nitrogen, as well as liver function tests, complete blood counts and urinalyses, on 15 patients who had been treated with trihexyphenidyl for six months or longer. In no instances were there significant changes in the results of any of these tests.

As noted previously, trihexyphenidyl may produce a feeling of "jitteriness" or "nervousness." This may be counteracted by giving phenobarbital in doses of ¼ to ½ grain (0.016 to 0.032 Gm.) three times a day.

Many of the patients with long-standing parkinsonism stress the absence or the decrease of disagreeable reactions due to taking trihexyphenidyl, in contrast to what they have noted with the belladonna group of drugs. One may see little change in tremor or rigidity when the shift is made from scopolamine to trihexyphenidyl, but patients may, nevertheless, prefer the new drug because they have noted an improvement in vision, salivation and bowel habits.

In general, when patients have been taking amphetamine or a similar compound with a belladonna alkaloid, I suggest that they continue with the stimulant when the change is made to trihexyphenidyl. Several patients, after trying the new drug for a month or two, have added small doses of atropine or scopolamine to it and have found the combination more satisfactory than either alone. Usually, however, trihexyphenidyl by itself has appeared to be equally satisfactory.

As is true with the other antispasmodics employed against parkinsonism, patients note a lessening of symptomatic relief with continued use of trihexyphenidyl. A part of this decrease of effectiveness is attributable to the patient's expectation of continued improvement, rather than the acceptance of mere alleviation of symptoms. To what extent true tolerance develops is difficult to say at this time. When the effectiveness of the drug has appeared to wane, I have occasionally tried switching to the previously used drugs for a period of a month or longer, with the usual result that the patient will request a return to trihexyphenidyl.

Cases are now briefly reported, to illustrate the type of response to trihexyphenidyl noted by patients in the previously mentioned categories. Several cases illustrate undue sensitivity to, or toxicity of, trihexyphenidyl (artane®).

REPORT OF CASES

Case 1.—Parkinsonism began in a 42 year old Negro teacher in 1943 and 1944 with weakness and stiffness of his right hand. There was gradual appearance of tremor, sialorrhea, facial immobility and propulsive gait. Belladonna alkaloids (rabellon®) were administered. On June 18, 1948 the patient exhibited extreme slowness of all movements, cogwheel rigidity, festination and tremor. Treatment with trihexyphenidyl was begun, 5 mg. being given three times a day. The next day mild toxic delirium, confusion and irrational speech were noted. The use of the compound was stopped, and the mental state was satisfactory sixteen hours later. There was definite reduction in rigidity. On June 21 the patient restarted the use of the drug with a dose of 2.5 mg., three times a day, without evidence of toxicity. On July 22 he wrote that he was improved and requested more of the drug. On August 30 the patient's home physician reported complete blood counts and the results of urinalysis as normal. The patient reported a decrease of tremor and stiffness and stated that he could walk, eat, talk and write better, and could dress himself and drive his car, which he could not do prior to the use of trihexyphenidyl. He had some dryness of the mouth and blurring of vision. His back was straighter, and he held his head up better. From Sept. 30, 1948 to April 10, 1949 he submitted monthly reports, with requests for additional trihexyphenidyl. The improvement was maintained.

Case 2.—A car dealer aged 63 years noticed the onset of tremor and muscular rigidity in 1946. On March 16, 1948 examination revealed coarse tremor of all four extremities when the patient was at rest. There were loss of associated movements, loss of facial expression and increase of muscle tonus with a suggestion of the cogwheel phenomenon. Administration of 2 mg. of trihexyphenidyl three times a day was started. By April 21 the patient could get out of his chair more easily, and there was some decrease in rigidity but not much change in tremor. On September 21 the patient and his home physician estimated that tremor had been reduced about 25 per cent by the use of trihexyphenidyl. The patient noticed that he got in and out of a car more easily when he was taking this drug. He had some dryness of the mouth. The home physician reported that complete blood counts and the results of urinalysis were normal; he stated that the patient's condition was improved. On March 28, 1949, a review of monthly reports indicated that the initial improvement had been maintained and that there had been no serious untoward side effects.

Case 3.—An artist 62 years old began to have weakness of the fingers of his right hand in 1942. By 1944 there were tremor and stiffness of both hands. By 1946 he had loss of facial expression, difficulty in speaking and sialorrhea. He was treated with scopolamine and mixed belladonna alkaloids. Typical parkinsonism was evident on Sept. 3, 1948, when he began taking trihexyphenidyl at the rate of 2 mg. four times a day. On October 8 a letter from the son, who is a physician, said that the patient had experienced general improvement in all symptoms, was more cheerful and was again attempting portrait painting. There was no change in tremor, but there was improvement in gait, voice and ability to feed himself. He no longer shirked dinner invitations, and there were no unpleasant side effects. Complete blood counts and the results of urinalysis were satisfactory. A letter from the son on Feb. 20, 1949 stated that the improvement had been maintained and that no toxic side reactions had occurred. Laboratory studies gave normal results.

Case 4.—A 46 year old man had acute encephalitis in 1927. In 1941 the onset of tremor of the left leg, which spread to other extremities, and the onset of oculogyric crises were noted. On Aug. 11, 1948 examination disclosed typical parkinsonian tremor, rigidity and gait. His previous treatment had consisted of the use of stramonium from 1936 to 1946 and mixed belladonna alkaloids, 4 mg. a day, from 1946 to Aug. 11, 1948, when he began taking 2 mg. of trihexyphenidyl four times a day. On August 23 the dosage of this drug was increased to 3 mg. five times a day. Improvement was noted in walking, sleeping and reading. Oculogyric attacks decreased in frequency and severity. On October 20 it was observed that a decrease of tremor had occurred. The patient continued to maintain improvement in walking and could dress himself "twice as quickly." He wrote "his first letter in ten years." By Jan. 8, 1949 he had gained 14 pounds (6.4 Kg.) since he began taking trihexyphenidyl, and improvement had been maintained. Information received on April 12, 1949 indicated that improvement had been further maintained.

Case 5.—In January 1947 a woman aged 43 years felt overworked, tired, nervous and depressed. In June 1947 she had uncontrollable turning of the head to the left. In December 1947 examination disclosed spasmodic torticollis, with hyper-

6. Canelis, M.; Farnell, F. J., and McGavack, T. H.: Clinical Experiences in Parkinsonism with a New Type of Antispasmodic, to be published.

trophy of the right sternocleidomastoid muscle. All cervical muscles showed some increase of tone, and there was a suggestion of tremor of the right leg. On psychiatric evaluation she was thought to have a mixed psychoneurosis. On the twenty-ninth of that month she began taking trihexyphenidyl, 1 mg., five times a day. On March 5, 1948 she stated that the drug relaxed the spasms of her neck and that the effect of 1 tablet (1 mg.) lasted about four hours. No toxic symptoms were noted. By May 24 she was taking 5 to 6 mg. of the drug daily, and there was subjective as well as objective improvement in the "pulling and jerking" of her neck. Occasional blurring of vision was noted. On September 27 she was still taking trihexyphenidyl, had no disagreeable side reactions and thought that she was still being benefited. She was able to teach school. A report on April 4, 1949 indicated that she was under considerable tension in her teaching position with the end of the school year approaching. Symptoms of torticollis were becoming worse. She insisted that she was better when receiving trihexyphenidyl, however. A letter on May 12 requested more of the compound and suggested improvement as compared with her condition in April.

CASE 6.—A 33 year old secretary first noted in 1945 that her right arm tended to pull across the front of the body when she was writing. She had to change jobs. In 1946 she stopped eating with her right hand because it would pull to the left. She noted "twitching" of the muscles of the right shoulder. In October 1948 she had pain in the right shoulder and dull achings which were worse when she attempted to use her right arm. In January 1949 there was subjective weakness of the right shoulder muscles. On January 11 examination disclosed dystonic movements of the right shoulder and arm muscles. Treatment consisted of physical therapy and the use of trihexyphenidyl, 2 mg., four times a day. On January 19 subjective improvement was apparent. She was able to sleep, eat and work more comfortably. On February 16 improvement had been maintained and she could raise her arm higher than previously. On March 29 her condition appeared to be about the same as on February 16. She was then taking 2 mg. of trihexyphenidyl five times a day and had experienced no unpleasant side reactions.

CASE 7.—A 66 year old retired teacher began to have tremor of her right arm and hand in 1946. She was given scopolamine and stramonium. On Aug. 19, 1948 she had a pill-rolling tremor of the right arm and leg and some increase of tonus of the right extremities. A diagnosis of parkinsonism was made. She began taking 1 mg. of trihexyphenidyl three times a day and was told to increase the dose gradually, so that on September 2 she was taking 2 mg. four times a day. On the last-mentioned date she was extremely tired, had a headache, was agitated, was perspiring freely and was extremely nervous. The next day use of the drug was discontinued, and two days later she had completely recovered from the acute toxic reaction.

SUMMARY AND CONCLUSIONS

The new synthetic antispasmodic compound, trihexyphenidyl (artane,® 3-[1-piperidyl]-1-phenyl-1-cyclohexyl-1-propanol hydrochloride), has been given to 104 patients suffering from parkinsonism, spasmodic torticollis, facial spasm and miscellaneous dyskinesias. More than half of these patients have received the drug for longer than six months. The majority of the patients of each of these groups appeared to derive sufficient subjective benefit from the treatment to justify its continuance. Disagreeable side reactions were usually avoided when small initial doses of the compound were administered and gradually increased until optimal benefit was obtained. Unpleasant effects noticed occasionally by 41 patients were, in the order of frequency, dry mouth, nausea, "giddiness," blurring of vision, nervousness or "jitteriness," tinnitus, "tightness in the head" and soreness of the mouth. Four patients have manifested severe and immediate toxic reactions, namely, mental confusion, dizziness with nausea, and marked agitation.

The chief virtue of trihexyphenidyl appears to be its ability to provide symptomatic relief comparable to or greater than that afforded by the usual belladonna alkaloids while causing fewer disagreeable side reactions. Thus far, no alterations have been noted in blood counts or in the results of urinalysis which could be attributed to the administration of trihexyphenidyl.

It is emphasized that the foregoing observations are based largely on subjective data and that current impressions may have to be modified when further information is available.

ABSTRACT OF DISCUSSION

DR. PETER G. DENKER, New York: For the past year my associates and I have been experimenting with the use of various drugs on the neurologic wards at Bellevue Hospital, in the hope of evaluating their efficacy in parkinsonian states. We have thus far had experience in about 50 cases, but unfortunately artane,® being one of the most recent we have used, has been tried in only 18 cases. In these 18 cases, however, I am glad to confirm the general impressions of its value as outlined by Dr. Corbin. We found 11 of the 18 patients to be definitely improved. Our average dose was 8 mg. daily. Two patients could not tolerate the drug, chiefly because of dizziness and gastrointestinal symptoms. In 5 cases no significant improvement was noted. As to our results with the other drugs tried, with scopolamine 30 of 50 patients were improved and with diphenhydramine (benadryl®) 39 to 55 were similarly greatly helped. Tripelennamine (pyribenzamine®) and methapyrilene (histadyl®), two other antihistaminic drugs, did not give favorable results, indicating there is something else in the tripelennamine medication responsible for its therapeutic usefulness other than its antihistaminic effect. Thephorin® (2-methyl-9-phenyl-2,3,4,9-tetrahydro-1-pyridindene hydrogen tartrate) alone was not of great value, but this compound and scopolamine administered in combination were distinctly effective, more so than either drug alone, beneficial results being obtained in 7 of 13 cases. This figure is even more significant because of the fact that each of these drugs when used separately in these cases did not produce adequate responses. Lastly, we tried tolserol® (3-ortho-toloxy-1,2-propanediol) in 24 cases, but our results were unfavorable, only 4 of the 24 patients being improved, and there was a very high toxic reaction when the drug was administered orally. We are glad to confirm the findings of Dr. Corbin in the use of trihexyphenidyl in Parkinson's disease. We feel this drug is of distinct value, although not by any means the final answer in the treatment of Parkinson's disease.

DR. ROLAND P. MACKAY, Chicago: Because of the unsatisfactory nature of all known methods of treatment of parkinsonism, one grasps anything new with eagerness. I have had no personal experience with trihexyphenidyl. I have been disappointed with the other newer drugs suggested for parkinsonism. As regards diphenhydramine, I have not found that it helped any patient of mine at all. The same applies to tripelennamine. Parpanit® (diethylaminoethyl-1-phenylcyclopentane-1-carboxylate hydrochloride), likewise, is as good as nothing, in my experience, as is tolserol.® Apparently the chief value which trihexyphenidyl has, from the studies of Dr. Corbin, is in the scarcity of unpleasant side effects. To date, scopolamine is far superior to every other drug used in this condition, perhaps with the exception of trihexyphenidyl, but, unfortunately, about 10 per cent of patients do not tolerate scopolamine, because of unbearable dryness of the mouth, or dilatation of the pupils, with difficulty in reading, or confusional states, or even a psychosis. Some patients taking scopolamine cannot sleep at night because of nightmares. If trihexyphenidyl will give as good results as scopolamine and will not produce these unpleasant side effects, it will be a great contribution. Our best plan in cases of parkinsonism will undoubtedly be, in the future as in

the past, to treat with a combination of drugs. We will probably find that, as has been true with the drugs heretofore at our disposal, we shall wish to combine trihexyphenidyl with scopolamine, or with some of the other belladonna drugs, or with amphetamine.

DR. KENDALL B. CORBIN, Rochester, Minn.: I agree entirely with what Dr. Denker and Dr. Mackay said. Trihexyphenidyl is one more palliative drug in the treatment of these movement disorders, and I am sure that other products will also prove helpful. One has to try several drugs and individualize the therapy in each case of parkinsonism. I did not have time to stress the importance of psychotherapy, such as reassurance, helping the patient with his occupational problems, and so on. These patients also benefit tremendously, I feel, from physical therapy. These are all an important part of the treatment. We, also, have had no success with tolserol.® Parpanit® has been given to 20 patients, but we have felt that trihexyphenidyl was more effective. Diphenhydramine has occasionally seemed to be the drug of preference in early cases of parkinsonism, in which the symptoms are of a minor nature and the patient does not wish to be bothered by the side reactions of the stronger antispasmodics. Regarding facial spasm, I should like to say again that the improvement was only brief. It lasted for two or three weeks and gradually lessened. If we could learn what causes that initial improvement—and I say again that I do not think it is due to emotional influence—and then do something to maintain it, we might really be able to help these unfortunate patients.

MERCURIAL DIURETICS AND ACUTE URINARY RETENTION

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The treatment of congestive heart failure has undergone important changes in recent years. From an era in which prolonged rest, digitalization and severe fluid restriction constituted the basis of therapy we have passed to a phase in which the key objective is increased renal excretion of water. Thus overt edema and occult edema (as in pulmonary congestion) are treated by a salt-poor regimen, liberal fluid intake and organic mercurial agents (as well as digitalis and oxygen).

The considerably increased use of mercurial compounds in congestive heart failure has added greatly to the efficacy of treatment, with resulting decrease of morbidity and mortality.

As with other therapeutic agents of demonstrated potency, the administration of mercurial diuretics sometimes occasions unpleasant and even serious consequences. The fact that sudden death following intravenous injection of these drugs has been reported by several observers [1] has led to use of the apparently safer intramuscular route of administration.[2] Not uncommonly, severe leg cramps result from excessive loss of sodium and water. This distressing, though not serious, symptom may be effectively countered by oral administration of common salt and may be avoided in subsequent treatment of the subject by smaller doses of the mercurial agent.

The syndrome of salt depletion induced by a regimen of sodium restriction and sodium diuresis (mercurial injections) has recently been reemphasized by Soloff and Zatuchni.[3] Four fatalities were reported, each preceded by nitrogen retention. That there is a risk of uremia from sodium depletion, especially in patients with renal damage, seems indicated by the case reports of MacGuire.[4] Favorable effect on such uremia is achieved by administration of sodium chloride. Symptoms of a serious nature, entirely attributable to the extrarenal factors of disturbed water and electrolyte balance resulting from profuse and rapid diuresis, rather than from inherent toxicity of mercurial diuretics, have been described by De Graff and Nadler,[1b] Poll and Stern [5] and Hines.[6]

Other adverse effects which have been noted in patients receiving organic mercurial drugs [1b] are: digitalis toxicity during treatment with digitalis; manifestations of idiosyncrasy; mercurial poisoning (less common with the rapidly excreted theophylline-containing compounds); cutaneous eruptions; chills and fever, and shocklike reactions, in which individual susceptibility to a particular mercurial compound may be the significant factor.

Mercurial diuretic agents have assumed such an important role in the treatment of congestive heart failure that the relatively small number of adverse sequelae incident to their administration by no means contraindicates their widespread use. It is nevertheless important for the clinician to explore all possible effects of these agents, favorable and unfavorable, the more intelligently to handle patients in need of treatment. With this consideration in mind we wish to report briefly 5 illustrative cases (from 8 on which we have data) in which acute urinary retention resulted from the use of mercurial agents.

As in the syndrome of salt depletion, sudden and profuse diuresis, and not the toxic effect of the drug, was the provocative factor. We have been impressed with the frequency with which middle-aged and elderly men, with manifest or unrecognized prostatic disorders, have been thrust into acute urinary retention by administration of mercurial drugs. Often, unnecessarily large doses of mercurial compounds have been administered. In 3 instances emergency surgical intervention became necessary. In the comment following the case reports we shall discuss the hydrodynamics involved and shall offer suggestions designed to prevent this complication.

REPORT OF CASES

CASE 1.—B. F., a white man aged 76, was known to have had arteriosclerotic and coronary arterial heart disease for at least ten years. For approximately fifteen years he had had slight diurnal frequency and nocturia (two to three times), but no dysuria. He had never sought medical advice for bladder symptoms. On Jan. 10, 1948 he had a moderately severe attack of nocturnal dyspnea of one hour's duration. With the spontaneous subsidence of this seizure, he fell asleep. The next morning he consulted his physician. Digitalis, salt-poor diet, liberal fluid intake and limited physical activity

From Lebanon Hospital.

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were prescribed. At 10 a. m. 1.5 cc. of meralluride sodium solution was administered intramuscularly. At 11 p. m. of the same day the physician was hurriedly summoned to the home of the patient, who had acute urinary retention associated with severe lower abdominal pain and distressing tenesmus of the bladder. Having voided small amounts of urine with unaccustomed frequency until 2 p. m., the patient had been unable to void thenceforth. Digital examination of the rectum revealed a decidedly enlarged, uniform and moderately firm prostate. By urethral catheterization 500 cc. of urine was withdrawn, an appreciable residue being permitted to remain in the bladder. Until the morning of January 13 the patient was not able to void spontaneously, requiring cateterization twice daily. From January 13 to 18 there was gradual regression of bladder discomfort, less frequent urination and finally the resumption of the patient's normal bladder status. Further mercurial therapy was refused, even though the physician proposed much smaller doses than originally administered. Subsequent treatment consisted of a stringent salt-poor diet, digitalis, liberal intake of fluid and restricted physical activities. There has been no exacerbation of bladder symptoms.

CASE 2.—S. J., a white man aged 55, was known to have had rheumatic heart disease for many years. For several years he had had slight diurnal frequency and nocturia (twice) but no dysuria. On July 10, 1947 examination disclosed mitral stenosis, aortic insufficiency, auricular fibrillation and moderately severe failure of both sides of the heart. One cubic centimeter of meralluride sodium solution was administered intramuscularly, and the patient was placed on a regimen of digitalis, a salt-poor diet and ample fluids. Within several hours after the mercurial injection the patient experienced pronounced urgency and unaccustomed frequency of urination. Eighteen hours later he required emergency treatment at his home for acute urinary retention with a decidedly distended bladder. Digital examination of the rectum revealed minimal enlargement of the prostate. A urethral catheter was easily passed into the bladder, and 500 cc. of urine was withdrawn. After this there were no further unusual bladder symptoms. There was no retention or dysuria, and the patient continued with normal bladder status.

CASE 3.—J. G., a white man aged 65, had arteriosclerotic heart disease, auricular fibrillation and increasing congestive heart failure. There were bladder difficulties of approximately one year's duration, consisting of frequency of urination (every hour), dribbling and nocturia (three to four times). On Oct. 16, 1947 his physician administered 1 cc. of mercurophylline injection intravenously. Within a few hours the patient's discomfort due to his bladder had increased decidedly; he became unable to void, and he was catheterized at home. Digital examination of the rectum revealed that the prostate was slightly enlarged, semifirm, smooth and not tender. Catheterization was performed at least twice daily until October 23, when an indwelling catheter was permitted to remain in situ. On October 25 this catheter was removed, and again complete urinary retention ensued. At this juncture, because of ascending infection of the urinary tract, urologic consultation was requested and an emergency suprapubic cystostomy was performed by one of us (H. B.). Second stage prostatectomy was delayed because of the patient's poor cardiac status. On December 10 second stage prostatectomy was performed, from which the patient recovered uneventfully. Continued treatment of congestive heart failure consisted of mercurial injections, digitalis, salt-poor diet, ample fluids and limited physical activities, with satisfactory result.

CASE 4.—W. B., a white man aged 65, had arteriosclerotic heart disease and congestive heart failure. For a period of five years he had had vesical symptoms, consisting of difficulty in starting the urinary stream, micturition every two hours and nocturia (three times). On Nov. 25, 1947 his physician administered 1.5 cc. of meralluride sodium solution intramuscularly. Shortly after the injection the patient's bladder symptoms became decidedly aggravated, and acute urinary retention ensued. Twenty-four hours after the mercurial injection, with the patient at home, the physician attempted to pass a urethral catheter, but was unsuccessful. A urologist was likewise unsuccessful in his attempt to insert a catheter into the extremely distended bladder. Digital examination of the rectum revealed that the prostate was decidedly enlarged, firm, smooth and slightly tender, with the median sulcus obliterated. The patient was hospitalized, and a suprapubic cystostomy was performed. On December 8 second stage prostatectomy was performed; the patient's postoperative course was uneventful. Further treatment of congestive heart failure consisted of frequent mercurial injections, salt-poor diet, ample fluids and digitalis. The patient was discharged to his home on Jan. 1, 1948, where medical treatment was continued.

CASE 5.—L. K., a white man aged 69, consulted his physician on Nov. 10, 1948. He had had arteriosclerotic heart disease for at least ten years and had had increasing dyspnea on mild effort for the past year. Several moderately severe episodes of nocturnal dyspnea had occurred. For two years there had been slight diurnal frequency and nocturia (twice) but no dysuria. The patient had never sought medical advice for bladder symptoms. On November 10 the patient's physician administered 1 cc. of meralluride sodium solution intramuscularly. The ensuing diuresis was considered satisfactory. Thereafter, 2 cc. of meralluride sodium solution was administered every three days. Because of increasing bladder discomfort, chiefly urgency and burning on urination, administration of the mercurial agents was discontinued after the fourth injection. Bladder symptoms promptly subsided. On March 17, 1949, because of increasing symptoms of congestive heart failure, 2 cc. of meralluride sodium solution was again administered. Again there were decided bladder symptoms, which, however, subsided in three days. On March 24 the physician again administered a mercurial agent, mercurophylline injection, in a dose of 1 cc. Eight hours later catheterization became necessary for acute urinary retention. Because of pronounced bladder discomfort, continued frequency and urgency of urination, and a large volume of residual urine, the patient was admitted to the hospital on March 31. Digital examination of the rectum disclosed a decidedly enlarged prostate of uniform consistency. On April 7 suprapubic cystostomy was performed. Second stage prostatectomy had to be delayed because of profuse hemorrhage from a duodenal ulcer. Further administration of mercurial agents following the suprapubic cystostomy of April 7 resulted in satisfactory diuresis without discomfort to the patient.

COMMENT

A large proportion of the patients treated for congestive heart failure are middle-aged or elderly men. Not a few men of this age distribution have bladder symptoms, the result of varying degrees of obstruction of the bladder outlet, occasioned by prostatic enlargement. Most of these men accept the symptoms of slowed stream, slight diurnal frequency and some nocturia as inevitable concomitants of the aging process; therefore, they have not sought medical aid for this condition. In the absence of further increase in obstruction, infection of the urinary tract, bladder calculi, malignant growth of the prostate or bladder or advanced debility, such patients are likely to get along with relative control of the bladder indefinitely.

In these patients the bladder-emptying mechanism may be regarded as insufficient, but in a state of compensated insufficiency. Doubtless hypertrophy of the bladder muscle contributes to this, much as does hypertrophy of the cardiac muscle in valvular and other types of heart disease. Profuse diuresis, whatever its origin, with consequent distention of the bladder, proves sufficient to overcome the bladder's motor function; continuing accumulation of urine and bladder distention lead to further asthenia of the bladder wall. The

clinical picture of acute urinary retention ensues, with its additional threat to the patient in cardiac failure. In other instances, with an increase in the volume of residual urine, the bladder symptoms are aggravated without the development of complete urinary retention. In the large majority of patients, it is granted, there are no symptoms referable to the mechanism under discussion.

Tscherning [7] has stated the belief that men in whom acute urinary retention develops after mercurial injections are those with a hypertrophied prostate in whom additional, acute swelling accounts for complete obstruction of the bladder. The rapidity with which acute retention developed in a number of our cases shortly after the increased renal excretion of urine inclines us to the view that sudden distention of the bladder is the more important factor. We are not aware of any mechanism or data which suggest that prostatic edema results from the administration of mercurial agents.

Plotz [8] reported 3 cases of acute urinary retention following the injection of mercurial compounds in patients with congestive heart failure. These patients had all received opiates, and Plotz suggested that sedation probably diminished sensory reflexes from the distending bladder wall sufficiently to enhance the possibility of acute retention. In our cases there was no such sedation; hence, this explanation does not hold true in our experience.

It has become our practice to attempt to evaluate the bladder status of all middle-aged and elderly men in need of treatment for congestive heart failure. Careful inquiry to elicit the presence of bladder symptoms is most important. Without specific questioning the patient often fails to mention these symptoms, in the belief that they are normal or unimportant.

In patients whose bladder symptoms are severe and in those whose symptoms, while seemingly mild, are associated with a significant volume of residual urine (over 2 ounces, or 59 cc.), we prefer to avoid the use of mercurial compounds and to rely instead on a salt-poor diet. We have never observed bladder symptoms as the result of such a regimen. In an urgent situation, when mercurial agents must be administered to such poor "bladder risks," we begin with small doses of meralluride sodium solution, 0.1 or 0.2 cc., increasing the dose in daily injections and taking careful note of the response of the bladder. This practice, we believe, will help to eliminate the complication of exacerbated bladder symptoms or acute urinary retention in the mercurial treatment of middle-aged and elderly men.

SUMMARY

1. Attention is called to the importance of evaluating the vesical status of middle-aged and elderly men for whom mercurial diuretic treatment is contemplated.

2. Five cases are reported in which acute urinary retention followed the intramuscular administration of mercurial compounds.

3. Several methods are suggested for avoiding this complication in middle-aged and elderly men undergoing treatment for congestive heart failure.

840 Grand Concourse (51)—1749 Grand Concourse.

7. Tscherning, R.: Ueber Salyrgan, Deutsche med. Wchnschr. **53**: 1465 (Aug. 26) 1927.

8. Plotz, M.: Acute Urinary Retention Following the Use of Mercurials in Heart Disease, Urol. & Cutan. Rev. **47**: 286 (May) 1943.

LYE BURNS OF THE ESOPHAGUS

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The problem of choosing a method of treatment for a boy with multiple strictures of the esophagus due to swallowing lye [1] prompted us to survey our previous cases and to analyze our experiences with them. Since 1926 there have been 39 lye-burned patients admitted to the St. Louis Children's Hospital. Their ages have ranged from 6 months to 7 years, but 69 per cent of them have been between 1 and 3 years. Thirty-three of the patients were observed during the past ten years, with only 6 in the previous twelve years.

Eleven of the children were seen at the St. Louis Children's Hospital within forty-eight hours after their accidents occurred, and 28 not until strictures had developed. All of the patients had initial anorexia with increased salivation while the burns of the mouth were present. In most of them swallowing at first improved, but in those in whom strictures later developed the early improvement was followed by increasing dysphagia, first for solids and then for liquids. There was usually a history of vomiting immediately after small amounts of food were taken rather than of refusal of the child to swallow.

There were only two deaths in our series. One child whose esophagus had been perforated by an esophagoscope in 1934 died from mediastinitis, and another died from measles and pneumonia in 1933.

Although strictures are more likely to occur after ingestion of dissolved lye (84 per cent of those who drank a solution), an appreciable percentage (64 per cent) of those who took solid lye subsequently suffered from strictures. Three children who ate drano® had severe burns of the mouth, but for some unknown reason strictures developed in none of these. There is no absolutely reliable method of predicting whether or not a stricture will form after a child has taken lye into his mouth.

In judging the minimal length of time prophylactic therapy should be carried out, one may be guided somewhat by table 1, which shows the intervals of time between the ingestion of lye and severe dysphagia.

The location of the stricture is of interest, especially when one considers the possibility of treating these patients surgically (table 2).

In localizing the stricture, the barium sulfate swallow may be misleading unless a thick barium sulfate preparation is used. A stricture may be missed entirely in the fluoroscopic or roentgenologic examination of a frightened child if a thin barium sulfate preparation is used. On the other hand, the delay obtained with a thick preparation and the dilatation of the esophagus produced above the stricture make visualization much easier. Esophagoscopy is the most reliable method of localizing strictures and determining whether or not the scar tissue entirely surrounds the esophagus.

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Dr. A. F. Hartmann, professor of pediatrics, and Dr. T. E. Walsh, professor of otolaryngology, contributed constructive criticism in the preparation of this article.

1. Conference at the St. Louis Children's Hospital, July 30, 1948, J. Pediat. **33**: 630 (Nov.) 1948.

TREATMENT

Four methods have been used in the treatment of these patients, namely:

1. Early prophylactic dilation with mercury-filled rubber bougies.

2. Dilation from above under direct vision after stricture has occurred.

3. Gastrostomy with retrograde dilation.

4. Surgical repair of the esophagus.

1. Early Prophylactic Dilation.—Of the 11 patients seen by us within forty-eight hours of the burn, only 3 had strictures. (See table 3.) One was the first patient, seen in 1926, who had had no prophylactic dilation of his esophagus. Prophylactic dilation was tried on a 5 year old boy who drank a caustic boiler compound, but a stricture developed in the fourth week. The only other one who showed any sign of stricture was a 17 month old boy who drank dissolved lye. He had some narrowing of the esophagus in the third week of daily dilation. When he was examined with an esophagoscope, a circular burn of the upper third of the esophagus was seen. He was treated by cautious daily dilation for one month, the dilation being done from above with mercury-filled bougies, the largest which could be passed with ease being left in place for fifteen minutes before proceeding to the next. During the four months since the injury his esophagus has been dilated at intervals of two to seven days by his local physician, and at present a 30 F bougie can be passed with slight resistance. The child has no dysphagia. One child who ate drano® in 1941 was watched in the hospital by his private physician without dilation, and a stricture did not develop. It is an indictment of the medical profession that, although in 31 of our 39 cases the patient was seen by a physician within forty-eight hours of the burn, in most of the cases the parents were instructed to give local treatment of the mouth and were assured that all would be well.

TABLE 1.—*Intervals of Time Between Ingestion of Lye and Severe Dysphagia*

Time	Cases
Less than 1 week	1
1 to 3 weeks	9
3 to 5 weeks	7
5 to 8 weeks	2
More than 8 weeks	3
Unknown interval	8

During the past few years a general plan of early treatment has been followed with all the patients:

All children who give a history of having ingested lye are admitted to the hospital regardless of whether or not burns are seen in the mouth. The stomach is not lavaged, nor are emetics given. The patients are fed a liquid or soft diet with frequent sips of orange juice. If there are burns on the tip of the tongue only, or if there is a history of the child's ingesting lye without evidence of burns in the mouth, the patient should be examined with a laryngoscope and then cautiously with an esophagoscope from twenty-four to forty-eight hours after the burn. If no evidence of burn is found by an experienced endoscopist, one is justified in observing the child a few days longer and then sending him home after instructing the parents to bring him back for reexamination at frequent intervals for six months but to return immediately if he begins to have difficulty with solid foods.

If burns are seen on the tonsillar pillars or the soft palate, prophylactic dilation of the esophagus with mercury-filled rubber bougies[2] is begun forty-eight to seventy-two hours after the burn. The method used is essentially that described by Kernodle.[3]

At first a 14 F bougie is passed into the stomach without force and left five minutes. If this is well tolerated, the 16 F is passed. The size of the bougie and the length of time it remains in place are increased until, between the fourth and seventh days after the start of dilatations, a 30 F bougie is left in place for thirty minutes. The course of daily dilatations is continued for periods of from two to four weeks, depending on the apparent severity of the burn. Subsequently a dilatation is produced with the 30 F bougie every other day for two weeks, twice a week for one to two months, once a week for one to two months, every other week for two months and then once a month during the remainder of the year. It is important that early in the treatment the patient be examined by roentgenogram or by fluoroscope with the bougie in place, to make sure it reaches the stomach. If during the use of a mercury-filled bougie undue resistance is met, force should not be used; the patient should be examined with the esophagoscope and the esophagus dilated once or twice under direct vision. If it is then considered safe, the dilatations from above with mercury-filled bougies may be resumed cautiously.

TABLE 2.—*Location of Strictures*

Location	Cases
Upper third	9
Middle third	9
Lower third	5
Extensive and multiple	7

It has been our experience that these patients have bouts of fever after dilation during the early weeks of treatment. This is probably due to the shock of dilation. One child, for instance, had no fever when retrograde dilation was done under tribromoethanol anesthesia, whereas, his temperature rose to 39 or 40 C. (102.2 to 104 F.) when dilatations were done without the use of an anesthetic.

TABLE 3.—*Patients Seen Before Stricture Formation*

Treatment	Total No.	Outcome: Severe Stricture	Outcome: Slight Stricture	Outcome: No Stricture
No early dilation	2	..	1*	1
Early dilation (method 1) for 2 weeks or more	9	2†	..	7

* The patient was subsequently treated by method 2.
† One of these is being treated by method 1 and the other by method 2.

During infections of the upper respiratory tract swallowing and dilation become more difficult. It has been found that, whereas a child tolerated the passage of a 28 F bougie without difficulty one week, the next week, in the presence of an infection of the respiratory tract, no bougie larger than an 18 F or a 20 F could be passed. The dangers of mediastinitis and stricture during such an infection must not be overlooked.

2. Bougies may be obtained from the Murray Baumgardner Company, Baltimore, Md.

3. Kernodle, G. W.; Taylor, G., and Davison, W. C.: Lye Poisoning in Children, Am. J. Dis. Child. **75**: 135 (Feb.) 1948.

The psychologic aspects of the procedure of dilation are most important:

The child is made to fast for five to six hours beforehand. Everything necessary for the procedure—bougies, lubricant, mouth gag, suction machine and sheet for restraining the child—should be in place before the patient is brought into the treatment room. Then firmly but kindly he is "mummied" by an assistant, and the bougie is passed without force as soon as possible afterward. When the desired size has been passed, the restraints are released, and a sympathetic nurse or the mother, holding the tube in place, sits with the child until the tube is removed twenty to thirty minutes later. As soon as the procedure is over, all the equipment used is removed from sight, and the child is given water and then something to eat. The parents are requested not to discuss the accident or its treatment in the patient's presence. Usually the children tolerate dilation done from above better than they do retrograde dilation.

While the mouth is painful from the burn the patient is kept on a liquid diet including generous quantities of orange juice, and the diet is increased to soft and solid foods as tolerated. Gelatin desserts and puréed fruits and vegetables are usually taken better than bread, potatoes and cereals.

TABLE 4.—*Patients Treated After Stricture Formation*

Method	Treatment	Total No.	Treatment Completed: No Dysphagia	Treatment Completed: Slight Dysphagia	Treatment Completed: Died	Treatment Still Going on	No Follow-Up
1	Dilation with mercury-filled bougies	1	..	..	..	1	..
2	Dilation under direct vision from above	6	..	2	1	..	3
3	Gastrostomy with retrograde dilation	21	4	7	1*	5	4†
4	Surgical repair of esophagus	2	1	1	..	..	..

* The patient died from measles and pneumonia in 1934.
† One child whose gastrostomy wound closed has not been heard from in five years.

During the acute phase the patients are given supportive therapy, such as blood transfusions and parenteral administration of plasma and fluids. Penicillin therapy is instituted promptly and continued as long as there are burns in the mouth.

2. Dilation of Stricture from Above Under Direct Vision.—Ten children who already had strictures on admission have been treated by dilation from above under direct vision. Four of these were treated by this method at first, but later gastrostomy with retrograde dilation was used because of failure of the aforementioned method. The results in the 6 who received only dilation from above are summarized in table 4. This method has not been satisfactory in our hands because it has been difficult to get the parents to keep the appointments for dilation.

3. *Gastrostomy with Retrograde Dilation.*—Twenty-one patients with stricture have been treated by gastrostomy and retrograde dilation. In 11 of these the gastrostomy openings have been closed at least two years, and we have sufficient follow-ups so that we can evaluate our results. Four of the 11 patients report no dysphagia, but 7 have some difficulty in swallowing certain foods when they chew them inadequately. However, even those who have occasional dysphagia do not regard this as a disability. Five children are still under treatment. The follow-ups on 4 others are inadequate; however, the gastrostomy opening has closed in 1. (See table 4.)

Although this method is usually successful, the treatment is long and tedious. A total of 12 gastrostomy openings have closed. In these the time from the opening to the closure averaged two years and four months. The shortest period was eleven months and the longest four years. There is 1 patient, however, whose gastrostomy fistula has been open for seven years, and his esophagus is still being dilated by the retrograde method. In most cases the passing of the string for retrograde dilation has been difficult. An average of forty-four days elapsed between the time the gastrostomy was done and the time at which the string could be passed.

4. Surgical Repair of the Esophagus.—Two children have been treated surgically. One was an 8 year old boy who had swallowed lye five years previously. A gastrostomy had been done soon afterward, and the patient had been fed through it. No effort had been made to do retrograde dilation. He was admitted in 1938 with a complete stricture of the esophagus at the level of the suprasternal notch. The plastic surgeons constructed an external skin-lined tube connecting the ends of the esophagus. This operation was completed in 1943, and the patient now has no difficulty in swallowing. Occasionally he has some epigastric pain due to a reflux of gastric contents into the skin-lined tube.

The other surgically treated patient is a 2 year old girl who drank a strong solution of lye and within one week had a narrow stricture at the cardia. After three weeks she was examined with an esophagoscope, and the upper part of the esophagus seemed normal. Four weeks after the burn the thoracic surgeons excised the injured portion of the esophagus, brought the stomach part way up into the chest and performed esophagogastrostomy with vagotomy. A follow-up five months later shows that the patient has no dysphagia for solids or liquids and has gained weight well. There is no evidence of stricture on barium sulfate swallow.

If esophagogastrostomy is to be considered, gastrostomy will make such a procedure impossible; therefore, a definite choice of one method or the other must be made at the outset. On the other hand, the curvature of the esophagus just above the anastomosis in the patient just described would make dilation from above an extremely dangerous procedure if a postoperative stricture should form.

SUMMARY

Thirty-nine cases of lye burn have been studied with special attention being paid to the results of the various forms of treatment. Generally speaking, when patients are seen early, prophylactic dilation seems to give the most satisfactory result. After the formation of a stricture, gastrostomy with retrograde dilation, though often long and unpleasant, usually produces satisfactory results in the long run. There have not been enough patients who have been treated surgically in our series to justify conclusions; however, in 2 cases surgical reconstruction has given promising results.

129 Veterans Hospitals.—The Veterans Administration in June 1949 opened a new 399 bed general medical and surgical hospital in Providence, R. I., bringing the total number of VA hospitals to 129.—Veterans Administration, Release, July 5, 1949.

Clinical Notes, Suggestions and New Instruments

REMOVAL OF SADDLE EMBOLUS OF AORTA

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The diagnosis, symptomatology and successful treatment of arterial emboli have been greatly clarified in recent years. There have been numerous reports in the last decade [1] in American literature of successful embolectomies to save a limb or a life. However, this surgical emergency is not so common in an individual practice that anyone amasses a large series of cases.

The first successful embolectomy was performed by Lahey in 1911,[2] followed shortly with another by Key in the same year. The operation had been attempted unsuccessfully as early as 1895 by Abanejew. Between 1895 and 1911 Moynihan, Stewart, Doberauer, Murphy, Carell and others attempted the procedure. Scandinavian countries led all others in the development of this branch of surgery, and it was not until 1927 that American, British and Canadian surgeons began to perform the operation in other than scattered instances.

It is generally agreed that an embolus in a greater vessel is a true surgical emergency, and the successful outcome of such a case depends primarily on early diagnosis and treatment. In a large percentage of patients with arterial emboli there is preexisting left-sided heart disease, either auricular fibrillation, rheumatic heart disease, coronary occlusion or endocarditis. Patients who have any of these diseases are usually exceedingly ill, and the added complication of the occlusion of a major vessel is a serious matter. Diagnosis is usually not difficult. Pain is usually present, although varying in degree. This is thought to be caused by ischemia of the limb and the spasm of the vessels that is set up by the embolus. The affected limb may be cold and blanched, or it may present a characteristic mild, mottled cyanosis with evidence of considerable decrease in capillary exchange, demonstrated by pressure. Perhaps the best single aid in the diagnosis of this disease is the sudden cessation of pulsation in previously palpable vessels. The site of the embolism is usually not difficult to determine if one bears in mind the fact that emboli usually lodge at a point of major bifurcation. Most surgeons believe that once the diagnosis of embolism is made, early surgical removal of the clot offers by far the greatest chance of success. Even though collateral circulation seems adequate at the time, propagation of the thrombus and secondary spasm of the blood vessels may later completely occlude the vessel at a time when surgical removal of the embolus is no longer possible.

Key [3] and Lund [4] report 37 and 38 per cent cures by embolectomy. Lund further reports only 10 per cent survival among patients given more conservative treatment. According to Key the expected survival rates of life and limb, according to the location of the embolus, are as follows: brachial axillary, 44 per cent; femoral, 20 per cent; popliteal, 20 per cent; aorta, 17 per cent, and iliac, 15 per cent.

The accessibility of the artery involved is always an important factor, since most of the patients, as mentioned before, are poor surgical risks because of heart disease. The physicians doing most of this work feel, however, that, while technic is important, it should be within the ability of most general surgeons to treat these patients successfully, using the instruments and materials available in any well equipped hospital. Pennoyer [5] especially urges that, even in seemingly hopeless cases, an attempt be made to relieve the blockage in the vessel, since unusual success has often followed a bold attack on the embolus.

The technic of exposing any of the greater vessels is familiar to every general surgeon and needs no discussion here, nor should the routine administration of blood need emphasis. It is sufficient to say that the vessel should be stripped of its adventitia and exposed for a sufficient extent at the site of the embolus to allow the passage of a soft rubber strip or tube or of a protected clamp around the vessel, both above and below the occluded area, for control of bleeding when the vessel is opened and the embolus removed. The opening made in the vessel should be only large enough to allow adequate removal of the clot, and great care should be taken to avoid injury to the intima. Pulsation should be immediately restored if the obstruction has been completely relieved. Five-O silk on fine needles is recommended for closure, with interrupted sutures placed in a single row in order to carefully evert the intima. Although little mention is made of sympathectomy in the literature, we believe that this procedure, either periarterial or of the chain itself, should always be performed. This adds little to the risk, prevents secondary vessel spasm and greatly favors the survival of a limb with an impaired blood supply.

Postoperative care should consist of the intelligent use of supportive therapy aimed both for the care of the immediate surgical condition and for the cardiac or other systemic disease that precipitated the formation of the embolus. Most writers believe that the involved limb requires no specific treatment except slight elevation and rest.

Whether or not anticoagulants should be used is certainly not clear. In the case reported herein, heparin sodium was used and serious complications ensued. As will be brought out later in the case report, the administration of heparin sodium may have been a life-saving factor, but it was certainly almost lethal in its immediate results.

The problems of treatment were considered to be of sufficient interest to justify reporting the following case.

REPORT OF CASE

A. H., a white man aged 41, had been under treatment by one of us (A. S. H.) since 1944, because of moderate hypertensive cardiovascular disease. His blood pressure had varied from 160 systolic and 90 diastolic to 200 systolic and 100 diastolic. He was examined at fairly regular intervals, and in 1945 an electrocardiogram showed an entirely normal record. He presented himself for treatment because of occasional precordial pain which radiated to the left shoulder. The use of sedatives and moderation of exercise were adequate to control his discomfort until Nov. 10, 1947, at which time he was seized with severe substernal pain and dyspnea. His temperature was 101 F. The electrocardiogram revealed an extensive anterior myocardial infarction. He was admitted on November 10 to the Queen's Hospital.

The condition of the patient during his first week of illness was extremely serious, but he slowly rallied and was apparently making a satisfactory recovery until November 18, eight days after admission, when another cardiac infarction developed. Shortly thereafter, he complained of extreme pain in his left leg. Examination revealed that the limb was cold, white and pulseless. It was obvious that an embolus had developed, probably in the common iliac artery. An embolectomy was considered at that time, but because of the actual cardiac decompensation and the recent coronary infarct, it was decided to sacrifice the patient's leg in order to save his life. Dry gangrene of the leg below the knee ensued, but his coronary condition improved to such an extent that on December 10, one month after admission to the hospital, a low thigh amputation of the left leg was successfully performed with spinal anesthesia.

From The Clinic, founded by Dr. George F. Straub.

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2. Cited by Pratt.[1b]

3. Key, E.: Embolectomy on the Vessels of the Extremities, Brit. J. Surg. **24**: 350-361 (Oct.) 1936.

4. Lund, C. C.: The Treatment of Embolism of the Great Arteries, Ann. Surg. **106**: 880-909 (Nov.) 1937.

5. Pennoyer, G. P.: Arterial Embolectomy, Surg. Clin. N. Amer. 366-372 (April) 1948.

After several weeks the patient was discharged to his home on crutches. He was fairly active and moved about well on his crutches until Dec. 28, 1948, a little over a year after his original illness, when another myocardial infarction occurred. He was again hospitalized, and again convalescence was uneventful until about 8:30 a. m. on Jan. 10, 1949, when he was seized with a severe pain in the lower part of the abdomen radiating to the back. Examination of the lower limbs revealed that they were cold with a mild, mottled, generalized cyanosis. There was no pulsation in either femoral artery. It should be mentioned at this time that after the first embolus there had been no palpable pulse below the femoral artery in the remaining leg. The patient further complained of numbness across the lower portion of the abdomen and across the stump of the left leg. It was believed that a saddle embolism of the aorta had developed which had completely cut off the arterial supply below the bifurcation of the aorta on both sides. Surprisingly, his general condition was fair. His blood pressure was 130 systolic and 90 diastolic. He had no cardiac discomfort or dyspnea and was apparently well compensated. He was prepared immediately for surgical intervention, and, with spinal anesthesia, a long modified McBurney incision was made in the right side, which allowed adequate exposure by the retroperitoneal route of the bifurcation of the aorta. There was no pulsation in the distal 2½ inches (6.35 cm.) of the aorta, the entire length of which showed decided atheromatous degeneration and calcification. This was present in such a pronounced degree that it was difficult to find a reasonably normal portion of the vessel to incise. A lumbar sympathectomy of the right side, removing the second and third lumbar ganglions and the intervening chain, was immediately performed. The greater vessels, including the aorta, were freed of adipose tissue and adventitia, and small soft rubber tubes were placed around the greater vessels distal to the mass, which could be felt to fill the distal 3 inches (7.62 cm.) of the aorta, the common iliac, the external iliac and hypogastric arteries. A rubber-covered intestinal clamp was placed approximately 2½ inches (6.35 cm.) above the bifurcation of the aorta.

A longitudinal incision, 1.5 cm. in length, was made just above the bifurcation. The lower portion of the embolus, which occupied the common iliac, external iliac and hypogastric arteries, was easily milked through this small incision. The rubber tubes on the lesser vessels were drawn tight, and the clamp on the aorta was then carefully opened. Much to our satisfaction, the force of the arterial blood blew the entire upper portion of the embolus out through the incision. It weighed 11 Gm., was grayish white and obviously well organized. There was little evidence of recent thrombus formation. When the embolus was removed from the aorta a large plaque of intima, 2.5 by 1.5 cm., was also recovered. Gentle aspiration into the greater vessels in all directions failed to reveal any other portion of embolus. The finger was placed over the incision in the aorta, and normal pulsations ensued in all vessels. During this time the patient's blood pressure remained at about 130 systolic and 80 diastolic. It was a simple matter to prevent bleeding through the incision merely by placing the gloved finger over the opening. The incision in the aorta was then closed, using seven or eight mattress type interrupted sutures (00000 braided silk) so placed as to adequately and completely evert the intima. There was no bleeding at the line of the suture after the aortic clamp was removed. The abdominal incision was then closed without drainage, using interrupted sutures of 000 silk.

The patient's condition immediately after the operation was excellent. There was normal femoral pulsation. The foot and leg felt abnormally warm and were of good color. It was agreed by all who saw the patient postoperatively that the sympathectomy was in a large part responsible for this favorable condition.

Because of the incision in the aorta and the extensive atheromatous changes and, furthermore, since a large area of intima had been removed at the time of the operation, it was believed that thrombus formation would be almost certain to occur if some form of anticoagulant therapy were not used. Because of the uncertainty of the effects of dicumarol® and the difficulty in controlling its action, it was thought that heparin sodium probably would be the safest and best drug to use in the circumstances, since its action is prompt and since it is excreted rapidly. Administration of this drug presented a serious problem, for the patient was unable to tolerate large amounts of intravenous fluids because of his cardiac condition. The heparin sodium was given in small amounts of dextrose solution intravenously at three hour intervals. The amount given varied, but it usually required from 75 to 100 mg. to maintain the clotting time between fifteen and thirty minutes. Administration of this drug was continued for five days. There was apparently no bleeding into the incision or into the retroperitoneal space until January 13, the fifth postoperative day. That evening at 9:30 p. m. the patient was suddenly seized with severe pain in the lower part of the abdomen and went into profound shock with sweating, cold and clammy skin, thready pulse and other signs of severe hemorrhage. Inspection of the wound revealed it to be bulging. Palpation revealed a large mass about 10 by 5 inches (25.40 by 12.70 cm.) on the right side of the abdomen. At first it was believed that the suture line in the aorta had given way. Blood transfusion was immediately begun and repeated. The patient was watched closely for the next twenty-four hours, but the mass did not seem to increase in size. Thirty milligrams of vitamin K was given subcutaneously in divided doses during the first two hours following recognition of the hemorrhage. The clotting time when the hemorrhage occurred was twenty-four minutes. At the end of the first blood transfusion and the administration of vitamin K, the clotting time had fallen to twelve minutes. The next morning, twelve hours after the onset of hemorrhage and after the administration of a second blood transfusion, the clotting time was five minutes. The patient's general condition following his original shock was satisfactory.

Since further bleeding did not occur and all layers of the abdominal wall were involved in the hematoma, we assumed that the bleeding was not from the aorta but from the wound in general and that it resulted from heparin sodium therapy. The patient continued to complain of severe pain in the right side of the abdomen. After much deliberation, it was decided that it would be best to evacuate the hematoma, since its removal seemed to present less risk than that which might follow complications such as infection, which might easily ensue if such a huge blood clot were left to absorb by itself.

Therefore, on January 17 the lower portion of the incision was reopened and about 1,200 cc. of chicken fat clots and dark viscid blood was evacuated. No attempt was made to explore the region of the incision in the aorta. There was no evidence of bleeding at the time of the evacuation of the clot. Convalescence of the patient following this second surgical procedure has been smooth. At present writing, nine months postoperatively, he is back at work on crutches; the right leg is warm; there is excellent pulsation in the femoral artery, and he has no pain or discomfort of any kind aside from slight soreness in the incision. He is being fitted with an artificial leg.

SUMMARY

The case reported is typical in nearly every respect. The patient had been ill with severe left-sided heart disease. The symptoms of saddle embolism were unmistakable, and the diagnosis was made promptly.

Surgical removal of the clot was completed less than two hours after lodgment of the embolus and was much less difficult technically than might be anticipated. The lumbar sympathectomy is believed to have contributed materially to the successful outcome of the operation.

It is believed that the use of heparin sodium probably prevented thrombus formation at the site of operation, which was traumatized both by the incision into the aorta and by the application of the clamps for control of bleeding, which actually dislodged a large portion of degenerated intima.

This case bears out the fact that every victim of arterial embolism, no matter how apparently hopelessly ill, should be given the benefit of surgical treatment if operative intervention will offer any chance for survival.

AORTIC EMBOLECTOMY

Successful Removal of Saddle Embolus by Transabdominal Route

HARWELL WILSON, M.D.
Memphis, Tenn.

The dramatic result which may follow successful aortic embolectomy in a patient otherwise doomed to almost certain early death is widely appreciated. Although definite advances have recently been made in the surgical treatment of lesions of the aorta, Keeley,[1] reporting in 1948, was able to find reports of only 21 cases of successfully treated aortic embolism. He recorded an additional case of his own. The purpose of this report is to record another successful embolectomy of the aorta, to consider briefly some of the unusual features of this case and to make another plea for the early recognition and operative treatment of this type of lesion.

REPORT OF CASE

History.—The patient, a white man aged 57, entered the Baptist Memorial Hospital at 12:30 p. m. on Dec. 2, 1948. He had been seated at his desk at 9 a. m. when he had suddenly felt both lower extremities become numb and cool. This numbness and coolness was soon followed by pain in both hips, and this pain radiated down the backs of his legs, being severer on the left side. The patient telephoned his internist, Dr. W. C. Chaney, who, from the symptoms described by the patient, made a diagnosis of saddle embolus of the aorta. The patient was instructed to enter the hospital immediately but decided to go home instead. There he was given ¾ grain (0.049 Gm.) of morphine by his internist, who persuaded him to go to the hospital, where he was examined in consultation by Dr. C. H. Sanford, who concurred in the diagnosis of saddle embolus of the aorta.

The patient's past history revealed no evidence of heart disease. Six weeks prior to this admission he had been confined to his home with pleurisy, the exact cause of which was not apparent. There was a long-standing history of varicose veins and of thrombophlebitis involving both legs.

Operation.—At 2 p. m., just five hours after the onset of symptoms, a long paramedian incision was made in the abdomen. The abdominal viscera were retracted and the posterior parietal peritoneum was opened over the aorta, which was constricted about a clot at the site of its bifurcation. The embolus extended into the opening of each iliac artery. Soft rubber catheters were passed beneath each common iliac artery below the thrombus, and these were used to occlude the vessels at the time the aorta was opened. The aorta was similarly constricted above the embolus with a soft rubber tube. A diagonal incision extending into the right iliac artery was made in the aorta. The embolus was lifted out intact with an Allis forceps. Suction with a rubber catheter into the right and then into the left iliac artery produced no additional clots. The aorta was closed with a continuous everting suture of 5-0 arterial silk. After the opening in the posterior parietal peritoneum was sutured, the abdomen was closed. The blood pressure at the end of the operation was 135 systolic and 80 diastolic. This reading was similar to that found on examinations before the embolus developed, and the pressure, following operation, remained normal. It is of interest that from the time of hospital admission until after the embolus was removed the blood pressure varied from 180 to 190 systolic and 90 to 100 diastolic. At 7 a. m. on the morning following operation the patient's son, a physician, noted the presence of the dorsalis pedis pulse in both feet.

Postoperative Course.—During the convalescent period the heart was further studied, and roentgen and electrocardiographic examinations were reported as showing no abnormality. The convalescence of the patient was uneventful except for the collection of a large amount of serum in the wound. He left the hospital Jan. 6, 1949.

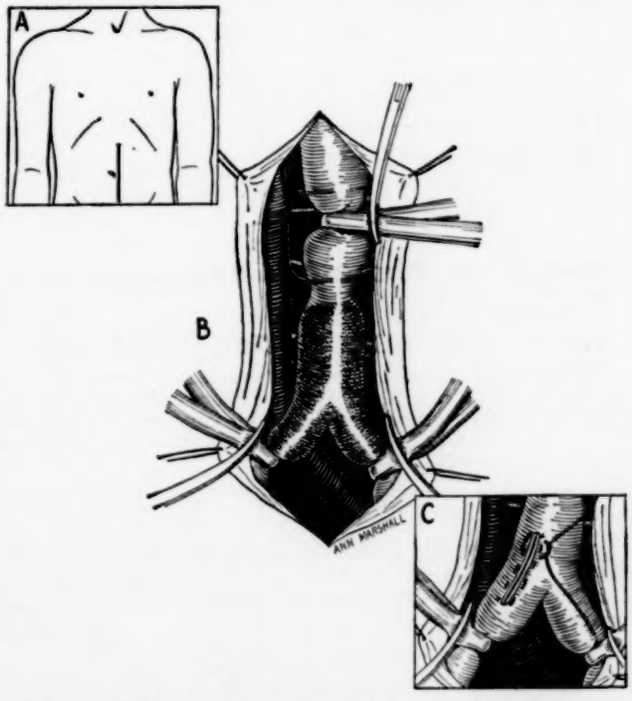
On March 2 the patient experienced sudden, rather severe pain in the left side of his chest and had a chill shortly after the onset of the pain. Hospital admission occurred on March 3 and a roentgenogram of the chest revealed a wedge-shaped area of increased density, which was believed to be an infarct, in the left lung field. Examination disclosed a positive Homan's sign on the dorsiflexion of the right foot.

The patient was again seen in consultation by me on March 5. It was believed that the pulmonary infarct demonstrated by the roentgenogram had originated from a dislodged thrombus in the legs. A bilateral femoral vein exploration and ligation below the profunda branch was performed. At exploration there was evidence of some organized thrombi in both femoral veins. The right saphenous vein was also divided at the saphenofemoral junction.

On the fourth postoperative day the patient exhibited symptoms which were interpreted as representing a mild embolic process involving the right cerebellar region. These symptoms subsided rapidly, leaving no residual effects, and the patient left the hospital on March 15. At the time of writing he appeared to be well.

COMMENT

The lodging of an embolus in any large artery is not only a serious condition in itself but also one that indicates the presence of a serious lesion elsewhere in the body which gave rise to the embolus. The great majority of such emboli come from the heart. Most patients who experience embolic occlusion of a major vessel are known at the time to be suffering from coronary heart disease, rheumatic endocarditis, auricular fibrillation or some associated type of cardiac disease. Atheromatous plaques in the aorta may produce secondary aortic emboli. There have been occasional reports of paradoxic emboli, arising from venous thrombi, reaching the aorta via a septal defect in the heart.[2] It is possible that thrombi formed in the pulmonary veins might give rise to an aortic embolus. The complete obstruction of the aorta at its bifurcation is the most serious of all peripheral embolic phenomena and, according to de Takats, represents 10.14 per cent of all peripheral emboli.[3]



A shows incision used for transabdominal aortic embolectomy. *B* illustrates appearance of saddle embolus at bifurcation of aorta and demonstrates method of preventing hemorrhage when aorta is opened. *C* illustrates location of incision in vessel and shows method of closure with continuous everting suture of 5-0 silk, reinforced with one mattress suture.

The case reported herein is of special interest in that the source of the embolus was not apparent. The patient did not show evidence of heart disease either before or after the aortic

From the Department of Surgery of the University of Tennessee College of Medicine and the Baptist Memorial Hospital.

1. Keeley, J. L.: Saddle Embolus of the Aorta, Ann. Surg. **128:** 257-265, 1948.

2. Birch, C. A.: Paradoxical Embolism with Report of a Case Due to a Ventricular Septum Defect, Brit. M. J. **2:** 722-728, 1948.

3. de Takats, G.: Surgical Treatment of Acute Vascular Occlusions, S. Clin. North America **22:** 199-220, 1942.

embolectomy. The history, physical examination and electrocardiogram all failed to show evidence of cardiac disease. However, since the patient had long had a history of recurrent thrombophlebitis in the extremities, this may have been an instance of paradoxic aortic embolus. The pleurisy experienced six weeks prior to the development of the saddle embolus may have been followed by thrombophlebitis or phlebothrombosis of the pulmonary vein. A large atheromatous plaque at some point higher in the vessel could be the site of origin of such an embolus.

It is of interest that this patient, who previously had had a normal blood pressure reading, was found to have a reading of 180 systolic and 90 diastolic when he entered the hospital with symptoms and signs of saddle embolus. The pressure returned to normal shortly after the embolus was removed. The elevation of the blood pressure in this instance would seem to have been caused by the blocking of the distal aorta and by the associated arterial spasm. In an experimental study in dogs, Brooks [4] found that ligation of the aorta below the inferior mesenteric artery had little effect on the pressure in vessels proximal to the ligation. However, there was a decrease in cardiac output, and it was believed that some fluid shift in the body resulted from the ligation. It appears that in this occlusion of the aorta the amount of associated vasospasm was greater than was the case in the ligation experiments of Brooks.

In most instances it appears that a direct attack on the embolus through the aorta is the favored procedure.[5] Several saddle emboli have been removed successfully by retrograde milking and retrograde probing; however, I believe that the more direct approach is usually preferable.[6]

899 Madison Avenue.

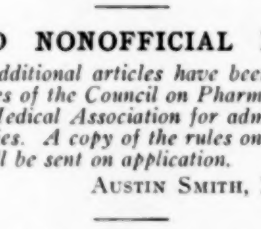
Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN SMITH, M.D., *Secretary.*

ESTRADIOL-U. S. P.—Ovocylin (CIBA).—Alpha-Estradiol. — 3,17-Dihydroxy-Δ-1,3,5-estratriene. $C_{18}H_{24}O_2$. — M.W. 272.37. The structural formula of estradiol U. S. P. may be represented as follows:



For description and standards see the U. S. Pharmacopeia under Estradiol.

Actions and Uses.—Alpha-estradiol is considered to be the form of the estrogenic hormone produced by the human ovary and is one of the more potent of the known compounds having estrogenic activity. It therefore shares the actions and uses of other estrogens and is subject to the same contraindications. (Also see general statement on Ovaries and the subsection on Estrogen.)

Alpha-estradiol is available as the pure crystalline compound, but it is mainly useful only as an oral or topical adjunct to parenteral therapy with the esterified compounds of estradiol or other injectable estrogens because it is subject to rapid destruction on injection. It also loses some activity when administered orally.

The use of ointment for inunction in mammary hypoplasia is considered to be of negligible value and offers no advantage over systemic therapy.

Dosage.—Alpha-estradiol is administered orally in the form of tablets or topically for local treatment of the vagina in the form of suppositories. Dosage is prescribed on a weight basis in preference to the unit systems which are sometimes used for impure estrogens or mixtures of various estrogenic substances. For the sake of comparison, it may be stated that 1 mg. of alpha-estradiol corresponds to 12,000 rat units, which is approximately equivalent to 120,000 I. U.

For initial therapy of the menopausal syndrome, when parenteral injection of other compounds may be undesirable or inconvenient, 0.5 mg. three times daily usually produces a prompt response; for maintenance, from 0.1 to 0.2 mg. three times daily may be sufficient. When a greater response is desired, parenteral therapy with injectable compounds may be used to start therapy and this followed by oral maintenance therapy with alpha-estradiol alone.

For local treatment in the vagina, a suppository containing 0.4 mg. inserted at bedtime is recommended for adults, in conjunction with systemic therapy. Lesser amounts for local vaginal treatment may be used in children, but such treatment is no longer the therapy of choice for gonorrheal vaginitis.

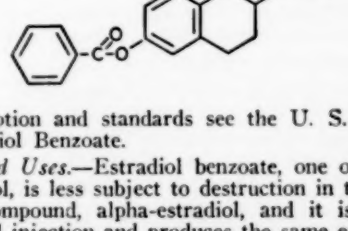
CIBA PHARMACEUTICAL PRODUCTS, INC., SUMMIT, N. J.

Vaginal Suppositories Ovocylin: 0.04 mg. and 0.4 mg.

Tablets Ovocylin: 0.1 mg., 0.2 mg. and 0.5 mg.

U. S. patent 2,096,744; U. S. trademark 362,717.

ESTRADIOL BENZOATE-U. S. P.—Ovocylin Benzoate (CIBA).—Alpha-Estradiol benzoate.—Δ-1,3,5-Estratriene-17-ol-3-benzoate. $C_{18}H_{23}O.C_7H_5O_2$.—M.W. 376.47. The structural formula of estradiol benzoate U. S. P. may be represented as follows:



For description and standards see the U. S. Pharmacopeia under Estradiol Benzoate.

Actions and Uses.—Estradiol benzoate, one of the esters of alpha-estradiol, is less subject to destruction in the tissues than its parent compound, alpha-estradiol, and it is thus suitable for parenteral injection and produces the same effects as alpha-estradiol. (See the monograph for Estradiol-U. S. P., the general statement on Ovaries and the subsection on Estrogen.) Esterification of alpha-estradiol slows its rate of absorption and elimination, so that the relative efficiency of the injectable estradiol benzoate is greater than that of orally administered alpha-estradiol. Estradiol benzoate is subject to the same contraindications as other estrogens.

Dosage.—Estradiol benzoate is administered by intramuscular injection as a solution in oil. It is given in doses expressed on the basis of the weight of the esterified compound. For the sake of comparison, it may be stated that 1 mg. of estradiol benzoate corresponds to 6,000 rat units, which is equivalent to 60,000 I. U.

For treatment of the menopausal syndrome, the initial dosage, depending on severity of symptoms, ranges from 1 mg. to 1.66 mg. twice weekly for two or three injections; for maintenance, from 0.333 mg. to 1 mg. twice weekly. In hypogenitalism and sexual infantilism, substitution therapy with doses of 1.66 mg. two or three times weekly is recommended. In functional uterine bleeding, 1.66 mg. three times weekly is recommended, followed by sequential progesterone therapy. In breast engorgement, 1.66 mg. daily is administered until the condition subsides. In kraurosis vulvae and senile vaginitis or pruritis vulvae, the dosage is indicated for the menopausal syndrome, except that this is sometimes supplemented by local therapy with vaginal suppositories of other estrogenic compounds. For palliation of prostatic carcinoma, 1.66 mg. three times weekly is injected.

CIBA PHARMACEUTICAL PRODUCTS, INC., SUMMIT, N. J.

Solution Ovocylin Benzoate in Oil: 0.166 mg., 0.333 mg., 1.0 mg., 1.66 mg., in sesame oil, 1 cc. ampuls.

Solution Ovocylin Benzoate in Oil: 0.333 mg. and 1.66 mg. per cc., in peanut oil, 10 cc. vials.

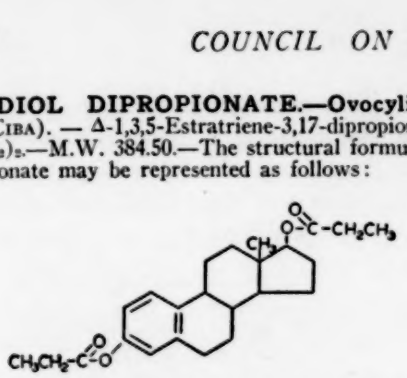
U. S. patent 2,033,487; U. S. trademark 369,298.

4. Brooks, B.: Ligation of the Aorta: An Experimental Study, Tr. South. S. A. **39:** 228-240, 1926.

5. Linton, R. R.: Arterial Embolism: A Simplified Technique for the Removal of a Saddle Embolus at the Bifurcation of the Aorta with the Report of a Successful Case, Surg., Gynec. & Obst. **80:** 509-516, 1945. Tendler, M. J.: Aortic Embolectomy: A Case Report, Memphis M. J. **23:**109-111, 1948. Keeley.[1]

6. McClure, R. D., and Harkins, H. N.: Recent Advances in the Treatment of Peripheral Arterial Embolism, Surgery **14:** 747-797, 1943.

ESTRADIOL DIPROPIONATE.—Ovocylin Dipropionate (CIBA). — Δ-1,3,5-Estratriene-3,17-dipropionate. — $C_{18}H_{22}(C_3H_5O_2)_2$.—M.W. 384.50.—The structural formula of estradiol dipropionate may be represented as follows:



Actions and Uses.—Estradiol dipropionate, an ester of alpha-estradiol less subject to destruction in the tissues than the parent compound, is suitable for parenteral injection to produce the effects of that estrogen and shares the actions and uses of estrogens in general. Its contraindications are also the same as for other estrogens. (See the monograph for Estradiol-U. S. P., the general statement on the Ovaries, and the subsection on Estrogen.)

Estradiol dipropionate, like estradiol benzoate, is absorbed more slowly and eliminated less rapidly than alpha-estradiol, but its effects are qualitatively the same as for other estradiol compounds. (Also see the monograph for Estradiol Benzoate-U. S. P.)

Dosage.—Estradiol dipropionate is injected intramuscularly as a solution in oil and is given in doses expressed in terms of the weight of the ester. On the basis of comparison with a single dose, it is considered to be approximately half as potent in terms of weight as estradiol benzoate, but, owing to its more sustained action, it is more potent than the benzoate when compared on the basis of maintenance milligram dosage required to provide equivalent therapeutic effects.

For the menopausal syndrome, the initial dosage ranges from 1 mg. to 5 mg. injected weekly for two or three injections; maintenance usually requires from 1 mg. to 2.5 mg. every 10 to 14 days. For substitution therapy in hypogenitalism and sexual infantilism, 2.5 mg. to 5 mg. weekly is recommended. For functional uterine bleeding, 5 mg. weekly is recommended followed by sequential progesterone therapy. In breast engorgement, 2.5 mg. daily are given until the condition subsides. The same doses as for the menopausal syndrome are applicable to kraurosis vulvae and senile vaginitis or pruritus vulvae. Systemic therapy may be supplemented by the local use of vaginal suppositories of alpha-estradiol. As a palliative in prostatic carcinoma, 5 mg. weekly are recommended.

Tests and Standards.—

Physical properties: Estradiol dipropionate occurs as small, white to offwhite crystals. It is almost insoluble in water; soluble in acetone, alcohol and dioxane; and sparingly soluble in vegetable oils. Estradiol dipropionate melts between 103 and 106 C.

Identity test: Accurately weigh approximately 0.1 Gm. of estradiol dipropionate, previously dried for 4 hours over sulfuric acid. Transfer it to a 10 ml. volumetric flask, fill to the mark with dioxane and determine the optical rotation using a 100 mm. tube. The specific rotation, $[\alpha]$ 25/D, is between + 35 and + 41 degrees.

Dissolve about 0.1 Gm. of estradiol dipropionate in 10 ml. of methanol. Add 0.15 Gm. of potassium carbonate dissolved in 0.5 ml. of water and reflux on a steam bath for 4 hours. Add 30 ml. of water and heat gently to evaporate the methanol. Add 15 ml. more water and keep at a temperature between 5 and 10 C. for 1 hour. Filter the precipitate with suction, wash with cold water until the washings are neutral to litmus paper, and dry the precipitate at 80 C.: the estradiol so obtained melts between 173 and 179 C.

Dissolve 2 mg. of the estradiol obtained by saponification in 2 ml. of sulfuric acid: the solution is greenish yellow and exhibits a slight green fluorescence. Divide the solution into two portions. To one portion add 1 ml. of water: the color changes to pale orange. To the other portion add 1 drop of ferric ammonium sulfate T.S.: the green fluorescence is greatly intensified; then dilute with water: the color becomes red to red-orange. Add 50 mg. of sulfanilic acid to 2 ml. of diluted hydrochloric acid and warm to dissolve. Cool the solution in an ice bath and add slowly with stirring 0.3 ml. of a 10 per cent aqueous solution of sodium nitrite. Dissolve 5 mg. of the estradiol obtained in the saponification in 5 ml. of a 10 per cent aqueous solution of potassium hydroxide and add to the diazotized sulfanilic acid: a deep red to red-orange color is produced.

Purity tests: Dry about 0.1 Gm. of estradiol dipropionate, accurately weighed, in a vacuum over phosphorous pentoxide for 4 hours at room temperature: the loss in weight does not exceed 0.5 per cent.

Char about 0.1 Gm. of estradiol dipropionate, accurately weighed; cool, add about 0.5 ml. of sulfuric acid to the cooled mass and ignite to constant weight: the amount of residue is not more than 0.1 per cent.

Assay: Estradiol dipropionate is assayed biologically.

CIBA PHARMACEUTICAL PRODUCTS, INC., SUMMIT, N. J.

Solution Ovocylin Dipropionate in Oil: 0.1 mg., 0.2 mg., 0.5 mg., 1 mg., 2.5 mg. and 5 mg. per cc. in sesame oil, 1 cc. ampuls.

Solution Ovocylin Dipropionate in Oil: 0.2 mg., 1 mg. and 5 mg. per cc. in peanut oil, 10 cc. vials.

U. S. patent 2,205,627; U. S. trademark 369,297.

SULFADIAZINE-U. S. P. (See New and Nonofficial Remedies 1949, p. 134).

The following dosage forms have been accepted:

ABBOTT LABORATORIES, NORTH CHICAGO, ILL.

Dulcet Tablets Sulfadiazine: 0.15 Gm. and 0.3 Gm.

U. S. trademark 301,662.

SULFAMERAZINE-U. S. P. (See New and Nonofficial Remedies 1949, p. 138).

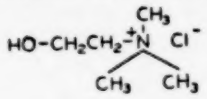
The following dosage form has been accepted:

ABBOTT LABORATORIES, NORTH CHICAGO, ILL.

Dulcet Tablets Sulfamerazine: 0.3 Gm.

U. S. trademark 301,662.

CHOLINE CHLORIDE.—Trimethylhydroxyethylammonium chloride.—$C_5H_{14}ClNO$.—M.W. 139.63.—The structural formula of choline chloride may be represented as follows:



Actions and Uses.—Choline chloride shares the lipotropic actions and uses of other choline salts and is likewise recognized for clinical trial as an adjunct in the treatment of fatty infiltration of the liver. (See the monograph on choline dihydrogen citrate.)

Dosage.—Choline chloride is administered orally in doses of 1.5 Gm. to 3 Gm. daily, but precise dosage for this and other choline salts is not yet established.

Tests and Standards.—

Choline chloride occurs as a white, crystalline, deliquescent substance possessing an amine-like odor. It is very soluble in water, freely soluble in alcohol and practically insoluble in benzene, chloroform and ether. The *p*H of a 10 per cent aqueous solution is about 4.65.

Dissolve about 0.3 Gm. of choline chloride in 2 ml. of water. Add 5 ml. of mercuric potassium iodide T.S.: a pale yellow precipitate is formed.

Add 1 ml. of a 1 per cent solution of choline chloride to 2 ml. of a cobaltous chloride solution (U. S. P. test solution diluted 1: 25). Add 2 ml. of 2 per cent potassium ferrocyanide solution: an emerald green color develops immediately.

Dissolve 0.5 Gm. of choline chloride in 2 ml. of water and divide the solution into two portions. To one portion add a few drops of phosphotungstic acid T.S. and to the other a few drops of tannic acid T.S.: a white curdy precipitate forms with phosphotungstic acid and no precipitate forms with tannic acid *(absence of neurine)*.

The heavy metals limit (U. S. P. XIII, p. 657) does not exceed 30 ppm. in a test using 0.5 Gm. of choline chloride and 0.5 ml. of 1 *N* hydrochloric acid.

Dry about 1 Gm. of choline chloride, accurately weighed, for 24 hours at about 120° C.: the loss in weight does not exceed 0.5 per cent. Ash about 0.5 Gm. of choline chloride, accurately weighed: the residue does not exceed 0.05 per cent.

Accurately weigh about 0.3 Gm. of choline chloride into a 50 ml. volumetric flask and dilute to the mark with water. Transfer 20 ml. of the solution to a 250 ml. Erlenmeyer flask, add 80 ml. of water and 1 ml. of potassium chromate T.S. Titrate with 0.05 *N* silver nitrate. Each ml. of 0.05 *N* silver nitrate is equivalent to 0.006982 Gm. of choline chloride: the choline chloride content is not less than 97 nor more than 101 per cent on a dry basis.

Accurately weigh about 0.2 Gm. of choline chloride, U. S. P. Reference Standard, into a 100 ml. volumetric flask and dilute to the mark with water. Transfer 8, 6, 5 and 4 ml. portions of the solution to separate test tubes, to each tube add 5 ml. of a freshly prepared and filtered saturated solution of ammonium reineckate (about 0.15 Gm.: 5 ml.), shake and allow to stand for 20 minutes. Filter the mixtures with suction, collecting the precipitates in fritted glass funnels. Wash the precipitates with 5 ml. portions of ice-cold water until the filtrates are colorless and then with two 2 ml. portions of ice-cold absolute alcohol. Continue drawing air through the filter funnels until the precipitates are dry. Place test tubes under the stems of the funnels in the suction flasks and, with the aid of suction, wash the precipitates into the test tubes with three 5 ml. portions of acetone. Transfer the filtrates to 50 ml. volumetric flasks, rinse the test tubes with acetone, make up the solution to 50 ml. with acetone and shake. Measure the light absorptions at 5260 A with a spectrophotometer. (Use acetone to set the instrument to zero absorption.) Plot absorptions versus concentrations to give a standard curve. Accurately weigh into a 100 ml. volumetric flask about 0.1 Gm. of the choline chloride to be analyzed and dilute to the mark with water. Transfer 10 ml. of the solution to a test tube and proceed as before. Read the concentration of choline chloride from the standard curve. The choline chloride content is not less than 97 nor more than 101 per cent on a dry basis.

SOLUTION CHOLINE CHLORIDE: From 5 ml. of the choline chloride solution prepare an aqueous solution whose final concentration is about 0.001 Gm. per ml. Transfer 10 ml. of this solution to a test tube and carry out the spectrophotometric determination described in the monograph for choline chloride, beginning with ". . . add 5 ml. of a freshly prepared and filtered saturated solution of ammonium reineckate . . ." The choline chloride content is not less than 90 nor more than 110 per cent of the claimed amount.

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Oral Solution Choline Chloride: 4 Gm. per 30 cc., 473 cc. and 3.78 liter bottles. An oral solution containing in each 30 cc., choline chloride 4 Gm., and benzoic acid 30 mg. and methylparaben-U. S. P. 12 mg. as preservatives, with saccharin, cane sugar, citric acid, caramel and raspberry flavor in distilled water.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, OCTOBER 8, 1949

TRAINING IN ANESTHESIOLOGY FOR GENERAL PRACTITIONERS

The announcement by the American Society of Anesthesiologists of completed plans to provide refresher courses on a national scale for general practitioners constitutes a significant contribution to the improvement of medical care. Under this plan more than seventy training centers have been established where any practicing physician, whether or not he is a member of the society, may secure training fitted to his needs under the direction of competent anesthesiologists.

The program has purposely been made flexible. One day sessions at weekly intervals will be provided for physicians who live close to an instruction center. Continuous courses of a week's duration or longer will be arranged for physicians coming from a distance. The courses will include lectures and demonstrations supplemented whenever possible by the anesthetic management of patients under supervision. The instructors will make themselves available by telephone or telegraph or in person for consultation. Most of the instruction centers will be able to provide this instruction without charging a fee.

This program has been adopted by the American Society of Anesthesiologists in recognition of the fact that many communities cannot support a full time, certified anesthesiologist.

Approximately 6,000,000 patients are anesthetized annually in this country in hospitals alone. Approximately 3,000 physician and resident anesthetists are members of the American Society of Anesthesiologists. Only one fifth of the society's members have been certified by the American Board of Anesthesiology. More than twice as many general practitioners administer anesthesia as are included in the total membership of the society. Many communities, however, are without medical anesthetists. A preliminary survey by the American Society of Anesthesiologists has shown that many general practitioners doing part time anesthesia desire instruction in modern anesthetic management with some of the more common agents and technics. Even more significantly, it has revealed that other general practitioners would be willing to administer anesthesia to patients in their rural areas if they could first receive proper instruction.

PREVENTION AND TREATMENT OF ATHEROSCLEROSIS

Knowledge of the factors involved in atherosclerosis, i. e., the most common type of arteriosclerosis characterized anatomically by the deposition of lipoidal matter in the arterial intima, has made significant progress recently. The clinical and experimental evidence supplies added weight to the concept that an instability of the plasma lipids of transitory or persistent nature is related to the development of these lesions. Abnormalities of the fat and oxygen metabolism represent the primary cause of these colloidal plasmatic disturbances.[1]

After Moreton[2] pointed out that the postprandial episodes of macrochylomicronemia following the intake of fatty meals might be related to atherosclerosis, Pollak[3] showed that cholesterol dispersed in serum and intravenously injected into rabbits was taken up by the arterial endothelium within a few minutes after injection. Although the total amount of chylomicrons after a meal is always in direct proportion to the quantity of fat ingested, Setälä[4] observed that the metabolic rhythm of the visible lipoidal plasmatic aggregates, i. e., the chylomicron curve, is characteristic for the individual and remains comparatively constant under the same external conditions. While most persons showed a rapid increase of the chylomicrons after a fatty meal followed by an abrupt drop, some persons displayed one or more, generally lower "after-peaks." Boas, Parets and Adlersberg[5] observed the comparatively frequent appearance of atherosclerosis in persons with a hereditary disturbance of the cholesterol metabolism, associated with hypercholesteremia. The coarser dispersion of cholesterol in the plasma which often but not always accompanies hypercholesteremia predisposes to the formation of endothelial foam cells through phagocytosis of precipitated cholesterol micels and occasionally may lead to the production of crystalline cholesterol emboli in small arteries of internal organs, with the subsequent development of foreign body granulomas.[6]

1. Hueper, W. C.: Arteriosclerosis: A Review, Arch. Path. **38**: 162 (Sept.); 243 (Oct.); 350 (Nov.) 1944; **39**: 51 (Jan.); 117 (Feb.); 187, (March) 1945; Prevention and Treatment of Atherosclerosis, M. Clin. North America **33**: 773, 1949.

2. Moreton, J. R.: Physical State of Lipids and Foreign Substances Producing Atherosclerosis, Science **107**: 371, 1948.

3. Pollak, O. J.: Development of Atheroma: An Acute Colloidal Phenomenon, J. A. M. A. **139**: 1189 (April 23) 1949.

4. Setälä, K.: Preliminary Observations on the Effects of Irradiation Upon the Chylomicrons in Human Blood, Radiology **50**: 803, 1948.

5. Boas, E. P.; Parets, A. D., and Adlersberg, D.: Hereditary Disturbance of Cholesterol Metabolism-Factor in Genesis of Atherosclerosis, Am. Heart J. **35**: 611, 1948.

6. Meyer, W. M.: Cholesterinkrystallembolie kleiner Organarterien und ihre Folge, Virchows Arch. f. path. Anat. **314**: 616, 1947.

The important role which the relative amounts of lecithin and albumin have in stabilizing the colloidally dispersed cholesterol in the plasma, even when present in excessive quantities, was demonstrated recently by Ladd, Kellner and Correll.[7] These investigators found that atheromatosis did not develop in rabbits that had received intravenous injections of detergents (tween 80®), although there was a definite rise of the plasma cholesterol level, because there was a proportionally higher increase of the phospholipids. Probably the cholesterol-phospholipid ratio is important in modifying or preventing the development of atherosclerosis. Differences of this order may account for the fact that the diabetic hypercholesteremia in man is associated with a tendency to atherosclerosis, while alloxan diabetes in rabbits with dietary hypercholesteremia lacks this tendency.[8] Apart from a few exceptional conditions hypercholesteremia, such as that seen with lipid nephrosis, hypothyroidism, diabetes mellitus, essential xanthomatosis and pregnancy, favors the deposition of lipid in the arterial intima.

Ungerleider, Gubner and Rodstein[9] concluded from their analyses of 612 subjects that even so-called normal cholesterol concentrations (average cholesterol 211 mg. per hundred cubic centimeters) seem to predispose to the development of atherosclerosis, because the "normal cholesterol" level is in reality a high cholesterol level. If additional evidence should support this observation, Ungerleider and his co-workers proposed to make drastic changes in the American diet by restricting the fat intake. In connection with a study of the oxygen metabolism in old age, Chieffi and Kountz[10] found a decline in oxygen consumption during the early phase of degenerative arterial disease. While they expressed the opinion that the lowered oxygen consumption is unrelated to the thyroid activity, other investigators observed decreased activity of the thyroid with advancing age. Apart from the relationship existing between myxedema and atherosclerosis, these observations are important, because dietary atheromatosis in experimental animals (rabbits, chickens) can be prevented or delayed by the simultaneous administration of thyroid hormone, which seems to have value in the control of the human disease (Herrmann,[11] Chieffi and Kountz,[10] Israel[11b] and others). Another group of investigators attempted to attain this goal by influencing the fat metabolism through the administration of the lipotropic factors of the vitamin B complex, namely choline and inositol (Morrison,[12] Herrmann,[11] Steiner[13] and others). Although the preventive and therapeutic results obtained in man and animals by this approach have not been consistent, they are sufficiently promising to merit further study, especially in connection with other factors influencing both the oxygen and fat metabolism. Since investigations of the prevention and therapy of atherosclerosis in experimental animals do not give results directly applicable to man, well controlled studies of patients are essential. From an evaluation and integration of the available data, measures suitable for the prevention and therapy of atherosclerosis must correct the fundamental metabolic disorders and the hematic colloidal disturbances. In a recently published discourse on this subject,[1] the following four approaches to atherosclerotic control were considered: (1) restriction of caloric and fat intake for all atherosclerotic patients who either are overweight or have a plasma cholesterol level above 220 mg. per hundred cubic centimeters and substitution of animal fat by vegetable fat, especially fats containing long chain fatty acids which form esters with cholesterol and which are poorly absorbed, as arachidic acid in peanut oil; (2) stimulation of the oxidative processes by giving a diet rich in proteins, oxytropic members of the vitamin B complex (nicotinic acid, thiamine, riboflavin) and small amounts of thyroid hormone; (3) decholesterolization of tissue depots by the administration of the lipotropic factors of the vitamin B complex (choline, inositol, pyridoxine), and (4) stabilization of plasma cholesterol with adequate amounts of colloidal stabilizers, as lecithin and albumin.

Although effective prevention and therapy of atherosclerosis is still in the experimental stage, the general outlook has become brighter. With greatly intensified research in prospect for the near future, the chances of survival and recovery of patients with atherosclerosis will no doubt be improved greatly.

7. Ladd, A. T.; Kellner, A., and Correll, J. W.: Intravenous Detergents in Experimental Atherosclerosis with Special Reference to the Possible Role of Phospholipids, Federation Proc. **8**: 360, 1949.

8. McGill, H. C.; Parrish, L. E., and Holman, R. L.: Influence of Alloxan Diabetes on Cholesterol Atherosclerosis in the Rabbit, Federation Proc. **8**: 361, 1949.

9. Ungerleider, H. E.; Gubner, R., and Rodstein, M.: Interrelationships of Cholesterol, Arteriosclerosis, Diabetes and Obesity, Progress report no. 22, Scientific Session, Am. Heart Association, 1949, p. 52.

10. Chieffi, M., and Kountz, W. R.: A Study of Rate of Oxygen Consumption in Patients with Arterial Degeneration and a Consideration of the Relation of the Metabolic Processes to the Onset of Degeneration, Proc. Am. Soc. Study of Arteriosclerosis, Am. Heart J. **35**: 19, 1948.

11. Herrmann, G. R.: Cholesterol Levels in Various Diseases and the Effects of Decholesterizing Agents, Texas State J. Med. **42**: 260, 1946.

11b. Israel, M.: Arteriosclerosis: Clinical Aspects, New York, Davenport Press, Inc., 1948.

12. Morrison, L. M.: New Methods of Therapy in Cirrhosis of the Liver, J. A. M. A. **134**: 673 (June 21) 1947.

13. Steiner, A.: Effect of Choline in the Prevention of Experimental Aortic Atherosclerosis, Arch. Path. **45**: 327 (Oct.) 1948.

Current Comment

POISONING FROM DRAWING CRAYONS AND SAFETY MATCHES

Mothers frequently worry because a child has chewed or swallowed such materials as drawing crayons or safety matches. As many as twenty-five types of drawing or marking crayons, apart from variations in imparted colors, are available on the market. Safety matches are among the most widely used products. The paper shafts for safety matches and sometimes the wooden sticks for safety or "strike anywhere" matches are first impregnated with a solution of phosphoric acid and/or ammonium sulfate to eliminate afterglow. These same shafts or sticks may be dipped in paraffin or its equivalent, to promote burning, prior to heading but, instead, may be dipped after heading for water-proofing

purposes. Neither white nor yellow phosphorus is now used in making matches, but occasionally the harmful form may exist as an impurity up to 0.6 per cent in the near harmless red phosphorus. In safety packet or box matches, red phosphorus, if at all present, is limited to the striking surface, where glue is also present, possibly with filler material, finely ground glass and coloring material. On striking surfaces, phosphorus sesquisulfide may appear. The chief constituents of the safety match head are antimony trioxide, potassium chlorate and sulfur, but with some variation. In addition, small quantities of manganese dioxide may be used as a catalyst for potassium chlorate. Zinc oxide, fine silica, plaster of paris, silicate powder, iron oxide and diatomaceous earth may appear as fillers. Glue or gum arabic may constitute the binder. Phosphorus sesquisulfide and/or red phosphorus are the active constituents of "strike anywhere" matches. The same sorts of fillers and glues are utilized. On occasion, bichromates are introduced into glues. In all types of matches, dyes are utilized and commonly are aniline dyes. To the extent used in matches, nearly all these substances are relatively nontoxic or are emetics or local irritants. If one assumes that a single match head contains 2 mg. of red phosphorus and of this harmless red phosphorus 0.6 per cent represents an impurity of harmful yellow phosphorus—the maximum and improbable—the match head may contain 0.012 mg. of harmful phosphorus. If the minimum fatal dose of yellow phosphorus be accepted as about 8 mg., 666 matches must be consumed to attain a fatal level of the chemical. This computation is speculative, and any similar computations are equally uncertain. From the consumption of a few matches the worst likely effects are emesis and gastritis. Some organic dyes used to color match heads may, after ingestion, lead to methemoglobinemia. Their importance increases if the number of matches ingested is high. With crayons the situation is similar. Two common types exist, namely, the extruded wax crayon and the cast chalk crayons. In the former, stearic acid or paraffin constitutes the wax which is associated with one or more of some thirty coloring agents. Chiefly the colors are aniline types, but some mineral types, such as the chrome-green, containing lead, still may be in use. Since these harmless waxes are little soluble in the alimentary canal, their content of dye, even if harmful, is only scantily released. Brieger [1] lately reported the occurrence in children of a number of instances of severe methemoglobinemia after the ingestion of wax crayons of certain colors, red-orange, orange, yellow and violet. He attaches significance to the chemical paranitraniline as the source of methemoglobinemia. This author recognizes the insolubility and nondigestibility of crayon waxes and experimentally has not been able to leach the dyes from them with such fluids as gastric juice. It was not possible to induce methemoglobinemia in dogs and rabbits after they had been fed wax crayons, but other investigators working with cats detected methemoglobinemia in one third of fasting cats fed red and red-orange crayons. The intravenous introduction of concentrated suspensions of the red dye was without effect. While no explanation of the mechanism of this form of poisoning exists, the actuality of occurrence must be accepted. In the second variety of crayons (chalks) may be found such constituents as plaster of paris, whiting, clay, bentonite, glue, dextrose and at times some waxes together with coloring material, usually aniline dyes but sometimes natural mineral dyes. Until recently, some chalks regularly contained lead compounds and lead poisoning occurred or was suspected. With the exception of the possibility of methemoglobinemia from aniline dyes, the ingestion of any considerable quantity of crayons and chalks manufactured by reputable producers may be expected to result in little more than gastritis. Of greater significance is the possibility of dermatitis, since several of the constituents mentioned, both for matches and crayons, are known skin irritants or sensitizers. The occurrence of silicosis or any other significant pneumoconiosis from prolonged exposure to crayon dust, such as in the schoolroom, is highly improbable.

1. Brieger, H.: Poisoning Due to Ingestion of Wax Crayons, Am. J. Pub. Health **39**: 1023 (Aug.) 1949. Jones, J. A., and Brieger, H.: Poisoning Due to Ingestion of Wax Crayons, J. Pediat. **30**: 422, 1947.

DIATHERMY IN THE HOME

Attempts to revive interest in home use of diathermy apparatus are being made by the New Diathermy Company, of which the William D. New Company is said to be the exclusive sales agency. Newspaper advertisements and letters to physicians and masseurs in the Chicago area are the first steps. The newspaper advertisement includes the following "Note to Doctors":

> Our purpose in introducing the New Shortwave Diathermy Unit is to provide a service for the Doctor and his patient where diathermy is indicated. Under no circumstances will our unit be sold before proper diagnosis has been obtained from a doctor of the patient's own choosing, or one provided by our company. That is our pledge to the Medical Profession.

This might seem a purely altruistic effort to discourage self diagnosis and self treatment, but printed in a newspaper it invites the patient to put pressure on his physician to prescribe home diathermy. The "Note to Physicians" seems to be an insolent, published assurance that the medical profession will share in the profits from the device. Further promotional literature includes personal letters addressed by the firm to physicians. One of these astonishing communications follows:

> We are about to appoint an examining doctor for the area in which you are located to perform the services covered in the statement "NOTE TO DOCTORS" in the attached newspaper advertisement. This service is provided only through doctors, for which we pay the doctor a fee ranging from $7.00 to $50.00.
>
> If you are interested in handling this work for us, will you please sign the attached card and mail it to us. We will then have an authorized technician get in touch with you to explain patient examination and diagnosis forms, as well as to outline the type of services required and the remuneration involved.

The Council on Physical Medicine and Rehabilitation has repeatedly declined to include home diathermy apparatus in its list of accepted devices. Self treatment with diathermy apparatus should not be encouraged, as was pointed out in THE JOURNAL (**133**: 541 [Feb. 22] 1947). The violation of ethics by this kick-back arrangement is clear.

ORGANIZATION SECTION

Official Notes

CONFERENCE OF STATE SECRETARIES AND EDITORS

The annual Conference of State Medical Association Secretaries and Editors will be held in the American Medical Association Building, Chicago, Nov. 3-4, 1949. The committee which has prepared the program for this conference consists of Dr. Douglas W. Macomber, Denver, chairman; Mr. Charles H. Crownhart, Madison, Wis.; Dr. Herman M. Jahr, Omaha; Dr. Frank J. Milloy, Phoenix, Ariz.; Mr. Charles S. Nelson, Columbus, Ohio, and Dr. Wallace M. Yater, Washington, D. C.

PROGRAM

THURSDAY, NOVEMBER 3

Assembly Room—Ninth Floor

9:00 a.m. REGISTRATION.

10:00 a.m. CALL TO ORDER AND OPENING REMARKS. Douglas W. Macomber, Denver, Scientific Editor, *Rocky Mountain Medical Journal*, and Chairman of Program Committee.

10:05 a.m. GREETINGS. Louis H. Bauer, Hempstead, N. Y., Chairman of the Board of Trustees of the American Medical Association.

10:15 a.m. ANNOUNCEMENTS. George F. Lull, Chicago, Secretary and General Manager of the American Medical Association.

10:20 a.m. MAKING A SPEAKERS BUREAU FULFIL ITS PURPOSE. Frank J. Holroyd, Princeton, W. Va., Chairman, Public Relations Committee, West Virginia State Medical Association and Area Chairman for the National Conference of County Medical Society Officers.

10:40 a.m. DISCUSSION PERIOD.

10:50 a.m. HOW CAN STATE MEDICAL ASSOCIATION SECRETARIES AND EDITORS IMPROVE ORGANIZATION RELATIONSHIPS WITH HOSPITAL ASSOCIATIONS? C. Rufus Rorem, Philadelphia, Executive Secretary, Hospital Council of Philadelphia.

11:20 a.m. DISCUSSION PERIOD.

11:40 a.m. LET'S COORDINATE THE PROGRAMS OF OUR NATIONAL MEETINGS.

(Four ten minute presentations)

Conference of Presidents and Other Officers of State Medical Associations. John E. Farrell, Providence, R. I., Secretary-Treasurer of the Conference.

Medical Society Executives Conference. James E. Bryan, Trenton, N. J., President of the Conference.

National Conference of County Medical Society Officers. A. M. Mitchell, Terre Haute, Ind., Chairman of the Conference.

Annual Conference of State Medical Association Secretaries and Editors. Joseph Garland, Boston, Editor, *New England Journal of Medicine*.

12:20 p.m. DISCUSSION PERIOD.

12:30 p.m. LUNCHEON.

2:00 p.m. OFFICE AND PERSONNEL MANAGEMENT IN THE EXPANDING HEADQUARTERS OF STATE MEDICAL ASSOCIATIONS. Charles S. Nelson, Columbus, Ohio, Executive Secretary, Ohio State Medical Association.

2:15 p.m. DISCUSSION PERIOD.

2:25 p.m. THE "MEDICAL GRAND JURY" PLAN OF INVESTIGATING PATIENT'S DISSATISFACTIONS. Harvey T. Sethman, Denver, Executive Secretary, Colorado State Medical Society.

2:40 p.m. DISCUSSION PERIOD.

2:50 p.m. DEVELOPING AND MAINTAINING READER INTEREST IN STATE MEDICAL JOURNALS. Wilfrid Haughey, Battle Creek, Mich., Editor, *Journal of the Michigan State Medical Society*.

3:10 p.m. DISCUSSION PERIOD.

3:20 p.m. NORTH CAROLINA'S HEALTH COUNCIL DEMONSTRATION PROGRAM. Charlotte Rickman, Lenoir, N. C., Health Education Consultant to the Medical Society of the State of North Carolina and the North Carolina Good Health Association.

3:40 p.m. DISCUSSION PERIOD.

3:50 p.m. AVAILABILITY AND UTILIZATION OF MEDICAL CARE IN AMERICA. George W. Bachman, Washington, D. C., Research Senior Staff Member of the Brookings Institution.

4:10 p.m. DISCUSSION PERIOD.

4:20 p.m. MOTION PICTURE: "THEY ALSO SERVE. THE PHYSICIAN'S RESPONSIBILITY IN THE EVENT OF A MAJOR DISASTER." Ernest B. Howard, Assistant Secretary of the American Medical Association and Acting Secretary, Council on National Emergency Medical Service.

4:40 p.m. DISCUSSION PERIOD. CLOSING ANNOUNCEMENTS.

THURSDAY EVENING, NOVEMBER 3

Walnut Room, Bismarck Hotel

6:45 p.m. DINNER FOR SECRETARIES AND EDITORS.

8:00 p.m. AS OTHERS SEE US. Harold M. Camp, Monmouth, Ill., Secretary, Illinois State Medical Society, and Editor, *Illinois Medical Journal*, Presiding.

WHAT'S WRONG WITH MEDICAL SOCIETY SECRETARIES? Walter E. Vest, Huntington, W. Va., Editor, *West Virginia Medical Journal*.

WHAT'S WRONG WITH MEDICAL EDITORS? Walter P. Anderton, New York, Secretary, Medical Society of the State of New York.

NOW THAT THE SHOOTING IS OVER! Joseph D. McCarthy, Omaha, Neb., Member of the Council on Medical Service of the American Medical Association.

FRIDAY, NOVEMBER 4

Assembly Room—Ninth Floor

9:30 a.m. CALL TO ORDER AND ANNOUNCEMENTS.

9:35 a.m. JOURNAL INCOME PROSPECTS FOR 1950: REPORT FROM COOPERATIVE MEDICAL ADVERTISING BUREAU. Stanley B. Weld, Hartford, Conn., Chairman, Advisory Committee, Cooperative Medical Advertising Bureau, and Alfred J. Jackson, Chicago, Director of the Cooperative Medical Advertising Bureau.

9:50 a.m. DISCUSSION PERIOD.

10:00 a.m. TALKING OURSELVES INTO TROUBLE. John L. Bach, Chicago, Director of Press Relations, American Medical Association.

10:15 a.m. MANAGEMENT OF RADIO RELATIONS FOR STATE MEDICAL MEETINGS. Harriet Hester, Chicago, Radio Representative, Bureau of Health Education, American Medical Association.

10:30 a.m. DISCUSSION PERIOD.

10:40 a.m. TECHNICS OF MANAGING A STATE LEGISLATIVE CAMPAIGN. Charles H. Crownhart, Madison, Wis., Secretary, State Medical Society of Wisconsin.

10:55 a.m. DISCUSSION PERIOD.

11:05 a.m. TECHNICS OF TESTIFYING BEFORE CONGRESSIONAL COMMITTEES. F. F. Borzell, Philadelphia, Speaker of the House of Delegates of the American Medical Association.

11:20 a.m. Discussion Period.

11:30 a.m. The British National Health Service: Results to Date. John W. McPherrin, New York, Editor, *The American Druggist.*

12:00 M. Sample Recordings of Mr. McPherrin's Interviews with British Officials, Physicians and Patients.

(Friday afternoon is left free so that Conference members may have opportunity to acquaint themselves with the American Medical Association headquarters offices and consult department heads.)

Washington Letter

(From a Special Correspondent)

Oct. 3, 1949.

Calendar on Health Legislation Virtually Cleared

Moving speedily and with harmonious bipartisan action, the Senate's docket of national health legislation has been disposed of almost in its entirety. In the final week of September this branch of Congress passed bills authorizing inauguration of a vast program of federal financial support of medical schools; directing U. S. Public Health Service to prepare plans for a national survey of chronic illnesses; establishing two more government institutes in medical research, and providing substantial salary increases for medical, dental, nursing and other professional personnel in the Department of Medicine and Surgery, Veterans Administration. Thus, with the exception of national compulsory health insurance, the only item of prospective legislation of broad significance still pending before the Senate is a bill on child and maternal health, the passage of which at this late date is doubtful.

Previously the House had passed the bill (H.R. 6022) increasing pay of Veterans Administration personnel, on which congressional action is now completed. This is the only health or medical bill of national importance which the House has passed this year. Since the first session of the 81st Congress is drawing to a close, Capitol observers feel that the only major measure fairly certain to be enacted into law is the bill on expansion of the Hill-Burton hospital construction act. If adjournment comes, as is likely, before action on federal aid to medical education, National Science Foundation, school health services, local public health units, extension of federal medical research and other bills already passed by the Senate, these bills are expected to come up for early consideration after the second session convenes in January.

House action on health legislation is being delayed by the absence of Representative Robert Crosser (Dem., Ohio), chairman of the Committee on Interstate and Foreign Commerce. He remained abroad after other members of the committee finished a two week study of government health insurance systems in England, Sweden and other European countries and returned home late in September. Although the subcommittee on health legislation, of which Representative J. Percy Priest (Dem., Tennessee) is chairman, will proceed with consideration of the bills already passed by the Senate, final action by the full committee probably will await Chairman Crosser's return to Washington.

Senate Hearings' Testimony Now in Print

Issued recently by the Senate Committee on Labor and Public Welfare is "National Health Program, 1949," a two volume transcript of testimony presented before the committee last May and June on compulsory health insurance, subsidization of medical education, voluntary prepayment plans and other issues involved in pending legislation. The compendium reveals there were 84 witnesses in all, including spokesmen for the American Medical Association, the American Hospital Association, organized labor, federal agencies, numerous voluntary associations and miscellaneous groups. Copies of the hearings may be obtained, up to the limit of supply, without charge on request to the Senate Committee on Labor and Public Welfare, United States Capitol, Washington 25, D. C.

Coming Medical Meetings

Annual Conference of State Secretaries and Editors, Chicago, A. M. A. Building, Nov. 3-4. Dr. George F. Lull, 535 N. Dearborn St., Chicago 10, Secretary.

Ambulatory Fracture Association, Toronto, Canada, Royal York Hotel, Oct. 24-27. Dr. H. W. Wellmerling, 120 S. LaSalle St., Chicago 3, Secretary.

American Academy of Ophthalmology and Otolaryngology, Chicago, Oct. 9-14. Dr. W. L. Benedict, 100 First Avenue Bldg., Rochester, Minn., Secretary.

American Academy of Pediatrics, San Francisco, Nov. 14-17. Dr. Clifford G. Grulee, 636 Church St., Evanston, Ill., Secretary.

American Clinical and Climatological Association, White Sulphur Springs, W. Va., The Greenbrier, Oct. 27-29. Dr. James Bordley III, Bassett Hospital, Cooperstown, N. Y., Secretary.

American College of Surgeons, Chicago, Stevens Hotel, Oct. 17-21. Dr. Paul B. Magnuson, 40 E. Erie St., Chicago 11, Secretary.

American Otorhinologic Society for the Advancement of Plastic and Reconstructive Surgery, Chicago, Palmer House, Oct. 13. Dr. Norman N. Smith, 291 Whitney Ave., New Haven 11, Conn., Secretary.

American Public Health Association, New York, Oct. 24-28. Dr. Reginald M. Atwater, 1790 Broadway, New York 19, Executive Secretary.

American Society for the Study of Arteriosclerosis, Chicago, Hotel Knickerbocker, Nov. 5-7. Dr. O. J. Pollak, Quincy City Hospital, Quincy 69, Mass., Secretary.

American Society of Clinical Pathologists, Chicago, Drake Hotel, Oct. 11-15. Dr. C. G. Culbertson, 740 S. Alabama St., Indianapolis, Secretary.

American Society of Tropical Medicine, Memphis, Tenn., Nov. 6-9. Dr. Frederick J. Brady, National Institute of Health, Bethesda 14, Md., Secretary.

Association of Life Insurance Medical Directors of America, New York, Hotel Statler, Oct. 13-14. Dr. Henry B. Kirkland, P. O. Box 594, Newark 1, N. J., Secretary.

Association of Military Surgeons of the United States, Washington, D. C., Nov. 10-12. Col. James M. Phalen, Army Institute of Pathology, Washington 25, D. C., Secretary.

Central Society for Clinical Research, Chicago, Drake Hotel, Nov. 4-5. Dr. Kenneth G. Kohlstaedt, 960 Locke St., Indianapolis 7, Secretary.

Conference of State and Provincial Health Authorities of North America, New York, Oct. 28. Dr. Russell O. Saxvik, State Health Officer, Bismarck, N. D., Secretary.

Delaware, Medical Society of, Wilmington, Oct. 10-12. Dr. W. Edwin Bird, 822 North American Bldg., Wilmington, Executive Secretary.

District of Columbia, Medical Society of the, Washington, Hotel Statler, Oct. 17-19. Mr. Theodore Wiprud, 1718 M St. N.W., Washington 6, Secretary.

Inter-American Congress of Surgery, Chicago, John B. Murphy Memorial Auditorium, Oct. 21-23. Dr. Alton Ochsner, 1430 Tulane Ave., New Orleans, Chairman Program Committee.

International College of Surgeons, United States Chapter, Atlantic City, Haddon Hall, Nov. 7-12. Dr. Arnold S. Jackson, 1516 Lake Shore Drive, Chicago 10, Secretary.

Inter-State Post Graduate Medical Association of North America (International Medical Assembly), Philadelphia, Oct. 31-Nov. 3. Dr. Tom B. Throckmorton, Equitable Bldg., Des Moines, Iowa, Secretary.

National Gastroenterological Association, Boston, Hotel Somerset, Oct. 24-26. Dr. Sigurd W. Johnsen, 1818 Broadway, New York 23, Secretary.

Neurosurgical Society of America, Quebec, Canada, Chateau Frontenac, Oct. 30-Nov. 1. Dr. Edward Schlesinger, 710 W. 168th St., New York, Secretary.

Oklahoma City Clinical Society, Oklahoma City, Biltmore Hotel, Oct. 24-27. Dr. F. Maxey Cooper, 512 Medical Arts Bldg., Oklahoma City, Director of Clinics.

Oregon State Medical Society, Eugene, Oct. 12-15. Dr. Werner E. Zeller, Medical-Dental Bldg., Portland 5, Secretary.

Post Graduate Medical Assembly of South Texas, Houston, Nov. 29-Dec. 1. Dr. E. Trowbridge Wolf, 229 Medical Arts Bldg., Houston, Secretary.

Southern Medical Association, Cincinnati, Nov. 14-17. Mr. C. P. Loranz, Empire Building, Birmingham, Ala., Secretary.

Southern Psychiatric Association, New Orleans, Nov. 27-29. Dr. Newdigate M. Owensby, 384 Peachtree St., N.E., Atlanta, Georgia, Secretary.

Southwestern Medical Association, Albuquerque, New Mexico, Nov. 9-12. Dr. Wickliffe R. Curtis, First National Bank Bldg., El Paso, Texas, Secretary.

Virginia, Medical Society of, Fort Monroe, Old Point Comfort, Oct. 9-12. Miss Agnes V. Edwards, 1200 E. Clay St., Richmond, Secretary.

Western Orthopedic Association, Santa Barbara, Calif., Biltmore Hotel, Oct. 19-21. Dr. Charles W. Gilfillan, 1680 N. Vine St., Hollywood, Calif., Secretary.

Western Surgical Association, Santa Barbara, Calif., Nov. 29-Dec. 2. Dr. Warren H. Cole, 1853 W. Polk St., Chicago 12, Secretary.

World Medical Association, General Assembly, London, Eng., Oct. 10-15. Dr. Louis H. Bauer, 2 E. 103d St., New York City, Secretary General.

GOVERNMENT SERVICES

NAVY

SHORT COURSE ON RADIOACTIVE ISOTOPES

One hundred and fifty reserve medical and dental officers and several Royal Canadian reserve medical officers attended a 5 day course in Medical Aspects of Special Weapons and Radioactive Isotopes, which began September 26 at Bethesda, Md. Capt. Melville J. Aston of the Naval Medical School conducted the course. The teaching staff included civilian consultants of the Navy, representatives of the Atomic Energy Commission and officers of the U. S. Public Health Service, Army and Navy, who are proficient in the field of atomic energy or specialize in the biologic and pathologic effects of ionizing radiation. Visits were made to the cyclotron at the Carnegie Institute at Chevy Chase, the National Cancer Institute, the National Institutes of Health and the Naval Medical Research Institute.

Civilian scientists who spoke were Drs. Charles F. Geschickter, J. B. Trunnell, Herbert Friedman, Philip H. Abelson, Karl Z. Morgan, Howard Andrews and R. E. Lapp. Frederick Reinhardt, of the State Department, gave one of the featured essays.

POSTGRADUATE INSTRUCTION

The following medical officers have been nominated for postgraduate courses of instruction as indicated:

Comdr. William H. Druckemiller, Sunbury, Pa., to a residency in neurosurgery, Kings County Hospital, New York.

Lieut. Charles D. Adams, Augusta, Ga., to a residency in dermatology and syphilology, Naval Hospital, St. Albans, N. Y.

Lieut. (jg) David C. Beer, Denver, to a residency in obstetrics and gynecology, Naval Hospital, Oakland, Calif.

Lieut. (jg) David B. Carmichael Jr., Orange, Calif., to instruction in cardiology, Massachusetts General Hospital, Boston.

Lieut. (jg) Frank J. Morgan Jr., Marion, Miss., to instruction in aviation medicine, Naval School of Aviation Medicine and Research, Pensacola, Fla.

MONTHLY MEETING

The first of the current series of guest lectures at the Naval Medical School, Bethesda, Md., was presented September 30 by Dr. Thomas M. Rivers of the Rockefeller Institute for Medical Research, New York, who spoke on "The Relationship and Reactions of Host Cells to Viruses and Rickettsiae." These meetings are open to members of the local medical societies and faculties of medical schools and to medical officers of the Army, Air Force, Navy, Public Health and Veterans Administration. Refreshments are served following the lectures.

NEW REGULAR OFFICERS

The following active reserve medical officers have recently accepted appointments in the regular Navy Medical Corps:

Lieut. (jg) David C. Beer of Denver.
Lieut. (jg) Ellsworth R. Browneller of Williamsport, Pa.
Lieut. (jg) Robert F. Dykhuizen of Indianapolis.
Lieut. (jg) Thomas S. Ely of Bethesda, Md.
Lieut. (jg) Larry J. Hines of McKinney, Texas.
Lieut. (jg) Francis J. Lineham Jr. of Stamford, Conn.
Lieut. (jg) Wolfram G. Locher of Chardon, Ohio.
Lieut. (jg) Deane E. McLeod of Seattle.
Lieut. (jg) Vernon J. Merkle of Monroe, Wash.
Lieut. (jg) Delmer J. Pascoe of Glendale, Calif.
Lieut. (jg) James L. Pollock Jr. of Denver.
Lieut. (jg) Jarvis H. Post of Greensburg, Pa.
Lieut. (jg) Thomas W. D. Smith of Murray, Utah.

PERSONAL

Rear Admiral Fredric L. Conklin, who retired September 30 after thirty-five years' service, will become head of the county hospital in his home state at Berrien Center, Mich.

Lieut. Comdr. Richard E. Kelley (MC, USNR) and Lieut. (jg) John W. Grover (MC, USNR) have been nominated for active duty at their own request. Dr. Kelley will pursue a course of instruction in dermatology and syphilology, University of Pennsylvania Graduate School of Medicine, Philadelphia, and Dr. Grover will be assigned to the Naval Hospital, Great Lakes, Ill., for duty.

AWARDS AND COMMENDATIONS

Lieut. Comdr. Ralph Christy Jr.

The Legion of Merit has been awarded to Lieut. Comdr. Ralph Lawrence Christy Jr., M.C., flight surgeon. The citation reads in part as follows:

For exceptionally meritorious conduct in the performance of outstanding services to the Government of the United States while carrying out research in the development of anti-blackout equipment for use in aircraft and the indoctrination of fleet pilots in the use of such equipment and, in addition, as Flight Surgeon attached to Commander Fleet Air West Coast from November 1944 to November 1945. Lt. Commander Christy repeatedly exposed himself to the force of high acceleration and pressure altitudes of over 50,000 feet in developing anti-blackout equipment which gave fleet pilots an advantage over the enemy in aerial combat; he also served as the Medical Technical Officer for the design and development of the world's largest Human Centrifuge, which is designed to permit the solution of problems in high speed and supersonic flight and, in particular, those of emergency escape from supersonic aircraft. His professional skill, resourcefulness and untiring devotion to duty reflect great credit on Lt. Commander Christy and the United States Naval Service.

AIR FORCE

FIVE NEW GENERALS

The Surgeon General's Office, U. S. Air Force, announces the promotion of Harry G. Armstrong, deputy surgeon general, and George R. Kennebeck, chief of the Dental Service, to major generals, and William H. Powell Jr., director of Professional Services, Albert H. Schwichtenberg, director of Plans and Hospitalization, and Dan C. Ogle, special assistant to the Surgeon General, to brigadier generals. The promotions were made following a transfer order by Louis L. Johnson, Secretary of Defense, which gave the Air Force Medical Service responsibilities formerly assumed by the Army. The U. S. Air Force Medical Service, which came into being July 1, 1949, had until then been known as Office of the Air Surgeon and had been under Army control.

MEDICAL OFFICERS CERTIFIED BY SPECIALTY BOARDS

The U. S. Air Force announces that the following medical officers have been certified recently by the specialty boards indicated: Col. Aubrey L. Jennings and Col. Earl Maxwell, American Board of Ophthalmology, and Col. John R. McBride, American Board of Internal Medicine.

APPOINT TWENTY CIVILIAN CONSULTANTS

The Surgeon General of the Air Force, Major Gen. Malcolm C. Grow, has announced the appointment of twenty civilian physicians representing different fields of medicine as consultants to the Air Force Medical Service.

The consultants appointed, together with their respective specialties, are:

Conrad Berens, New York, ophthalmology.

Paul A. Campbell, Chicago; Samuel J. Crowe, Baltimore, and William A. Morgan, Washington, D. C., otolaryngology.

R. Lee Clark, Houston, Texas, and Alton Oschsner, New Orleans, surgery.

Alfred R. Shands Jr., Washington, D. C., orthopedic surgery.

Robert E. Moran, Washington, D. C., plastic surgery.

Cortez F. Enloe, Manhausett, L. I., N. Y.; Elmer L. Henderson, Louisville, Ky.; William P. Holbrook, Tucson, Ariz.; Philip T. Kniess, Columbus, Ohio, and Russel V. Lee, Palo Alto, Calif., internal medicine.

Herbert B. Wright, Cleveland, urology.

Frank Fremont-Smith, Massapeque, L. I., N. Y.; Donald W. Hastings, Minneapolis, and John M. Murray, Boston, neuropsychiatry.

Charles E. Kossman, New York, cardiology.

W. Randolph Lovelace, Albuquerque, N. Mex., aviation medicine.

Howard A. Rusk, New York, physical medicine.

VETERANS ADMINISTRATION

ORTHOPEDIC AND PROSTHETIC APPLIANCES CLINICS

The Department of Medicine and Surgery announces the establishment of twenty-four Orthopedic and Prosthetic Appliances clinics in the following VA regional offices and centers:

The purpose of these clinics is to provide the means whereby seriously disabled VA beneficiaries requiring artificial limbs, orthopedic braces or orthopedic shoes may be given the best possible advice and treatment in the selection and fitting of prosthetic appliances and training in the use thereof. The clinics will bring the orthopedic surgeon, the physiatrist, the physical therapist, the prosthetic representative and the prosthetic manufacturer together to work as a team in solving the problems of seriously disabled veterans. The psychiatrist, as well as occupational and corrective therapists and other specialists, may be added to the team for cases in which their services are needed.

Location	Consultant or Attending Physician
Atlanta, Ga.	Dr. Robert P. Kelly
Boston, Mass.	Dr. Eugene Record
Chicago, Ill.	Dr. Clinton Compere
Dallas, Texas	Dr. Felix L. Butte
Detroit, Mich.	Dr. John Pendy
New Orleans, La.	Dr. Rufus Alldredge
Kansas City, Mo.	Dr. Richard H. Kiene
Los Angeles, Calif.	Dr. Paul E. McMaster
New York, N. Y.	Dr. Jerome Lawrence
Philadelphia, Pa.	Dr. J. Hamilton Allen
Pittsburgh, Pa.	Dr. John Donaldson
Portland, Oregon	Dr. Faulkner A. Short
San Antonio, Texas	Dr. M. H. Morris
San Francisco, Calif.	Dr. Charles Bechtol
St. Louis, Mo.	Dr. Edward C. Holscher
Seattle, Wash.	Dr. Ernest Burgess
Salt Lake City, Utah	Dr. Paul A. Pemberton
Louisville, Ky.	Dr. W. M. Ewing
Washington, D. C.	Dr. Everett J. Gordon
Cleveland, Ohio	Dr. W. H. McGaw
Honolulu, T. H.	Dr. S. F. Stewart
Denver, Colo.	Dr. Atha Thomas
San Diego, Calif.	Dr. Francis E. West
St. Paul, Minn., VA Center	Dr. Richard H. Jones

REPORT ON RADIOISOTOPES

The Central Advisory Committee on radioisotopes held its third annual meeting in Washington, D. C., September 26. Dr. George Lyon, chief of the Radioisotope Section of the medical service, reported that the Veterans Administration has established research units in twelve hospitals in developing its radioisotope program and that four new units will be established during the current fiscal year. Plans have been approved for radioisotope units in a number of hospitals now under construction. Dr. Lyon stated that the Division of Medicine and Biology of the Atomic Energy Commission and the Isotopes Branch at Oak Ridge, Tenn., had closely cooperated with the VA radioistope program. The advisory committee at this meeting discussed the individual reports of the various research units and the relation of these units to the VA education and training program. The committee members present at the meeting were:

Dr. Shields Warren, chief, Division of Biology and Medicine, Atomic Energy Commission.

Dr. Stafford Warren, dean, School of Medicine, University of California at Los Angeles.

Dr. Hymer Friedell, professor of radiology, Western Reserve University, School of Medicine, Cleveland.

Dr. Hugh Morgan, professor of medicine, Vanderbilt University School of Medicine, Nashville, Tenn.

Dr. Perrin H. Long, professor of preventive medicine, Johns Hopkins University School of Medicine, Baltimore.

PERSONAL

Dr. Herbert Kent, formerly fellow in physical medicine and rehabilitation, New York University–Bellevue Medical Center and the National Foundation for Infantile Paralysis, has been appointed chief of physical medicine and rehabilitation at the Veterans Administration Hospital, Indianapolis.

PUBLIC HEALTH SERVICE

THE NATION'S NEEDS FOR HOSPITALS

The Division of Hospital Facilities of the Public Health Service has published a manual which summarizes data submitted by the states up to Dec. 31, 1948, under the Hospital Survey and Construction Act. There is a map for each state showing plans for general hospital service regions and areas, existing facilities and those planned in order to provide the necessary facilities in each region. Another appendix consists of state tables which show for each general hospital service area the population; number of existing facilities and beds; number classified acceptable or nonacceptable; estimated and additional facilities and beds needed; percentage of population residing in places of less than 2,500 persons; per capita income, and priority rating of the area. Also described are the total beds and additional beds and facilities needed in each state and for the nation. Tables show the number of existing beds, additional number required and total beds needed in each state for general, mental, tuberculosis and chronic disease hospitals. Methods used by the states in planning their hospital construction programs are also described.

Copies of this manual may be obtained by writing to the Public Health Service, Washington 25, D.C., Attention: Division of Hospital Facilities.

CLOSE PITTSBURGH AND BUFFALO MARINE HOSPITALS

The U. S. Marine Hospital at Pittsburgh and at Buffalo, N. Y. will be closed as soon as possible in the interest of economy and of providing better care to merchant seamen and certain other groups. This action followed a recommendation by the Surgeon General, Leonard A. Scheele, after a study by a review board appointed by the Surgeon General. The decrease in the number of patients in the area entitled to medical care in this hospital did not warrant the expense of maintaining the hospital. Arrangements have been made to continue to provide adequate medical care for the public health service patients in these areas.

MALARIA INVESTIGATION STATIONS

The Communicable Disease Center of the U. S. Public Health Service at Atlanta, Ga., has established malaria investigation stations in three areas representative of the principal regions where malaria formerly was highly prevalent. One station is located at Helena, Ark., another in Baker County near Newton, Ga., and the third at Manning, S. C., near the Santee-Cooper Reservoir, the last station being operated cooperatively by the state of South Carolina and the Communicable Disease Center. The activities of these three stations are designed to determine the amount of malaria present in those areas, the abundance of Anopheles mosquitoes, the blood-feeding habits of local Anopheles species, influence of the climate and other factors on the mosquitoes and problems of Anopheles biology and malaria transmission. Dr. George H. Bradley is chief of the entomology division of the Communicable Disease Center with headquarters at Newton, Ga.

EXAMINATION FOR MEDICAL OFFICERS

A competitive examination will be held Jan. 9-11, 1950, for the appointment of medical officers in the Regular Corps of the Public Health Service. The examinations will be held at a number of places throughout the United States for appointments in the grades of assistant surgeon and senior assistant surgeon. Information and application forms may be obtained from the Public Health Service, Federal Security Agency, Washington 25, D. C., Attention: Division of Commissioned Officers. Applications must be received by Dec. 12, 1949.

PERSONAL

Dr. Alexander D. Langmuir, formerly associate professor of epidemiology, Johns Hopkins University School of Hygiene and Public Health, Baltimore, has been appointed chief of the epidemiology division of the Communicable Disease Center at Atlanta.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

ALABAMA

Changes in University Faculty.—The Medical College of Alabama at University has announced that Drs. James S. McLester, professor of medicine, James M. Mason, professor of surgery, and Stuart Graves, director of admissions, were retired during the past summer by reason of age. Dr. William H. Riser Jr., associate professor of medicine, has been appointed acting professor and chief of the department of medicine. Dr. Riser is a graduate of Emory University School of Medicine, Atlanta, 1938. Joseph K. Cline, Ph.D., has been appointed professor and chief of the department of experimental biochemistry and cancer research. He heads the newly created cancer research laboratory installed at a cost of over $100,000, received from the National Cancer Institute and the American Cancer Society. Dr. Cline received his masters and Ph.D. degrees from Johns Hopkins University, Baltimore, 1930 and 1934, and has been a research chemist for Merck and Company and Bell Telephone Laboratories. He has been on the faculty of the University of Texas School of Medicine, Galveston, since 1940 and has been director of the Cancer Research Laboratory there.

ILLINOIS

District Conference at Mount Vernon.—A graduate conference has been arranged for the Ninth Councilor District at the Emmerson Hotel, Mount Vernon, for the afternoon of October 26, with Dr. Charles O. Lane, West Frankfort, councilor of the district, presiding. Chicago speakers include:

Harry M. Hedge, Dermatology as Seen by the General Practitioner.
Archibald L. Hoyne, Poliomyelitis.
Robert S. Berghoff, Coronary Disease.
Harold M. Camp, The Fight Is Not Over.
Eugene A. Hamilton, Fundamental Principles in the Care of Fractures.
Charles D. Krause, Threatened Abortion.

After dinner Dr. Walter D. Stevenson, Quincy, president of the Illinois State Medical Society, will discuss society activities and present a paper on "Squint, a Medical and Economic Problem." The program was arranged through the Postgraduate Education Committee of the Illinois State Medical Society, of which Dr. Berghoff is chairman and Dr. George A. Hellmuth, Chicago, vice chairman.

Chicago

Pusey Memorial Lecture.—The third William Allen Pusey Memorial Lecture of the Institute of Medicine of Chicago will be delivered at the Palmer House, October 28 at 8 p. m. at a joint meeting with the Chicago Society of Internal Medicine. Dr. Walsh McDermott, associate professor of medicine, Cornell University Medical College, New York, will speak on "Antimicrobial Therapy."

Society News.—The North Side Branch of the Chicago Medical Society at its regular meeting October 27 at the Drake Hotel, 8 p. m., will be addressed by Dr. Charles L. Buxton, Columbia University, N. Y., who will speak on "Etiology and Therapy of Abnormal Uterine Bleeding," and Dr. Robert S. Hotchkiss of New York University on "Types of Hypogonadism in the Male and Their Treatment."——The Chicago Society of Allergy has announced the following officers for the forthcoming year: Drs. Morris A. Kaplan, president; Townsend B. Friedman, president-elect, and Theron G. Randolph, secretary-treasurer.

IOWA

Medical, Press and Radio Conference.—The Iowa State Medical Association held a medical, press and radio conference in Des Moines September 23. A panel discussion was held on "Mutual Interests of the Press, Radio and the Practice of Medicine," and editors of Des Moines and Waverly newspapers gave the point of view of city and rural editors. At the evening meeting Mr. William A. Richardson, Rutherford, N. J., was invited to speak on "First Year of the British National Health Service."

Drs. Millikan and Hardin Resign.—Drs. Clark H. Millikan, assistant professor of neurology, and Robert C. Hardin, assistant professor of internal medicine, have resigned from the faculty of the State University of Iowa College of Medicine. Dr. Millikan, who has been with the university since 1941, will become a consultant in neurology to the Mayo Clinic, Rochester, Minn., and assistant professor of neurology at the Mayo Foundation of the University of Minnesota Graduate School of Medicine. Dr. Hardin has accepted a position as medical director of the American Red Cross Blood Transfusion Program for the Connecticut region. He has been an assistant professor at the University since 1946.

MICHIGAN

New Detroit Health Officer.—Dr. Joseph G. Molner, associate professor of preventive medicine and public health, Wayne University College of Medicine, Detroit, has been named Detroit Health commissioner, after having been with the Department of Health since 1927 and deputy commissioner since 1938. He succeeds Dr. Bruce H. Douglas, also a Wayne University faculty member, who was fatally injured in an automobile accident in August.

Cancer Conference.—The first Michigan Cancer Conference, sponsored by the State Medical Society, State Department of Health and the Michigan Division of the American Cancer Society, will be held at the Hotel Olds, Lansing, October 11, beginning at 10:30 a. m. Invitations have been sent to medical, dental and nursing groups and to all lay health-minded organizations of the state, to news organizations and to other groups. The cancer program in Michigan will be discussed from the standpoint of providing facilities throughout the state for the early diagnosis of cancer.

MISSOURI

General Practitioners Seminar.—A postgraduate seminar has been arranged by the staff of the Washington University School of Medicine, St. Louis, in cooperation with the Missouri Academy of General Practice. It will be held each Wednesday night at Fayette beginning October 12 and continuing through November 16. Two thirty minute lectures will follow a dinner. There are no fees. Graduates of recognized medical schools are invited.

MONTANA

Dr. Ralph R. Parker Dies.—Ralph R. Parker, Ph.D., Hamilton, co-discoverer of a vaccine for Rocky Mountain spotted fever and director since 1928 of the Rocky Mountain Laboratory of the National Institutes of Health, died of heart disease on September 4 at Hamilton. Dr. Parker began his work in this field in 1916 in a cabin with one assistant. At the time of his death he directed a staff of 154 and made his headquarters in the Rocky Mountain Laboratory. Born in Malden, Mass., Feb. 23, 1888, Dr. Parker received his Bachelor of Science degree in 1912 from Massachusetts State College, which later made him a Master of Science, a Doctor of Philosophy and an honorary Doctor of Laws. He received his honorary Doctor of Science degree from Montana State University. After six years, 1915-1921, as an assistant entomologist with the Montana State Board of Entomology, he entered the U. S. Public Health Service and with Dr. Roscoe R. Spencer started the Rocky Mountain Laboratory in 1922 in an abandoned school house in Hamilton. Two years later, with Dr. Parker's help, Dr. Spencer succeeded in producing a vaccine from the infected tissues of the wood tick. The Spencer-Parker vaccine was the first ever developed that proved effective against any rickettsial disease. In an improved form it remains the standard preventive in tick areas.

NEBRASKA

Annual Mid-West Meeting.—The Omaha Mid-West Clinical Society will hold its annual assembly October 24-28 with headquarters at the Hotel Paxton, Omaha, under the presidency of Dr. Warren Thompson. Visiting lecturers include:

Max M. Strumia, Bryn Mawr, Pa., Use of Isotopes and Other Therapy in Blood Dyscrasias.
Granville A. Bennett, Chicago, Diagnosis of Certain Neoplasms of Bone.
Fremont A. Chandler, Chicago, Spinal Deformities and Their Treatment.
Louis G. Herrmann, Cincinnati, Nonmalignant Surgical Lesions of the Colon.
Lauren H. Smith, Philadelphia, Indications and Advantages of Hospitalization of the Psychoneurotic.
Jerome W. Conn, Ann Arbor, Mich., The Multiple Activities of the Adrenal Cortex in Man—Their Relation to Disease.
John Joseph Shea, Memphis, Tenn., Headache and Its Treatment.
James Barrett Brown, St. Louis, Surgical Management of Radiation Burns.
Willard R. Cooke, Galveston, Texas, Functional Disorders Encountered in Gynecologic Practice.
Wilburt C. Davison, Durham, N. C., Differential Diagnosis of Abdominal Pain in Infants and Children.
Edgar Burns, New Orleans, Diagnosis and Treatment of Common Bladder and Urethral Lesions in the Female.
Miss Leone Baxter, Chicago, Progress Report on the National Education Campaign.
Mr. Clem Whitaker, Chicago, Socialized Medicine Is Not Inevitable—and Why!
Theodore L. Squier, Milwaukee, Clinical Food Allergy and Pseudo Food Allergy.
Frederick W. Wittich, Minneapolis, Treatment of Allergies.
J. Harvey Black, Dallas, Texas, Treatment of Asthma.

NEW YORK

Postgraduate Instruction.—The Medical Society of the State of New York in cooperation with the New York State Department of Health has arranged the following postgraduate lectures for component societies: Ontario County Medical Society will hear Dr. John C. McCauley Jr., New York, speak on "Rehabilitation of the Poliomyelitis Patient" at 6 p. m. October 11 at the Canandaigua Hotel, Geneva. The Fulton County Medical Society meeting at the Hotel Johnstown in Johnstown October 20 at 9 p. m. will be addressed by Dr. Pelham Glasier, Albany, on "Cancer of the Colon."

New York City

Weekly Gastroenterologic Conferences.—The weekly gastroenterologic conferences at Bellevue Hospital will be resumed Monday, October 10 at 3:30 p. m., in the G 6 Amphitheatre, under the supervision of Dr. Jacob Buckstein. As in previous years these conferences will consist of a clinical, pathological and radiographic presentation of the gastrointestinal cases that have come to operation or autopsy.

New Members of Hospital Council.—The Hospital Council of Greater New York has announced the election of four new members to the board of directors. They are Dr. Stanhope Bayne-Jones, president of the Joliet Administrative Board of the New York Hospital-Cornell Medical Center; Hon. Joseph V. McKee, commissioner of commerce for New York City; Edward Neimeth, president of Maimonides Hospital in Brooklyn, and Gayer G. Dominick, president of the Roosevelt Hospital in this city. The Hospital Council of Greater New York is a nonprofit organization incorporated to coordinate and improve the hospital and health services of New York City and to plan the development of these services in relation to community needs.

University Names Four Department Heads.—New York Medical College, Flower and Fifth Avenue Hospitals, has promoted Dr. Francis D. Speer, assistant professor of pathology, to professor of pathology and clinical pathologist and director of the department. He succeeds Dr. George K. Higgins, who has resigned. Dr. Speer has been on the faculty of the college since 1934. He has also been director of the laboratory on clinical pathology.

Dr. Thomas J. Kirwin of the James Buchanan Brady Foundation of New York Hospital has been appointed professor of neurology and director of the department succeeding Dr. Sprague Carleton, who has been appointed professor of graduate neurology.

The newly appointed director of the department of pediatrics is Dr. Lawrence B. Slobody, who has been acting director of the department and attendant pediatrician at Flower and Fifth Avenue Hospitals and of the Metropolitan Hospital at Welfare Island. He is also chief of the Frederick S. Wheeler Laboratory for nutritional research.

A new department, the department of physiology and pharmacology, has been established under the direction of James W. Benjamin, Ph.D., who was appointed professor of functional anatomy and director of the department of physiology and pharmacology.

OHIO

Lectures on Emergency and General Practice.—The Society of General Physicians of Cincinnati in collaboration with the University of Cincinnati College of Medicine is offering a seminar for general practitioners October 4-27 in room 110 of the College of Medicine in "Emergencies in General Practice." The subject lectures held from 10 to 12 a. m. are:

Oct. 4, Management of Emergencies in Infants; Acute Infections of the Respiratory Tract.
Oct. 6, Cardiovascular Emergencies.
Oct. 11, Gastrointestinal Emergencies.
Oct. 13, Obstetric Emergencies—Antepartum and Postpartum Hemorrhage.
Oct. 18, Acute Endocrine Disturbances; Emergencies in Dermatology.
Oct. 20, Medical Thoracic Emergencies.
Oct. 25, Neurologic Emergencies; Orthopedic Emergencies.
Oct. 27, Common Poisons; Emergencies of the Eye.

Psychosomatic Ward Opened.—A new psychosomatic ward has been opened at Cincinnati General Hospital. Professional services will be provided by the local university College of Medicine's departments of psychiatry and internal medicine. Services of the college's other departments will be used when patients have illnesses of the sort usually treated by members of such departments. The new ward will aid in training medical students, interns, hospital residents and general practitioners and in furthering research, all in the field of psychosomatic medicine. Dr. Maurice Levine, head of the university's psychiatry department, also a member of the society's council, and Dr. Marion A. Blankenhorn, head of the university's internal medicine department, will be directors of the new ward.

OKLAHOMA

Annual Oklahoma Fall Conference.—The Oklahoma City Clinical Society will hold its annual fall conference and postgraduate assembly October 24-27 with headquarters at the Oklahoma Biltmore Hotel. Visiting lecturers include:

John M. Waugh, Rochester, Minn., Peptic Ulcer—Indications for Various Surgical Procedures.
Joseph B. Vander Veer, Philadelphia, Anticoagulant Therapy in Thromboembolic Diseases.
Francis W. Lynch, St. Paul, The Treatment of Acne.
Ralph K. Ghormley, Rochester, Minn., Painful Hips in Adults—Prevention and Treatment.
Joseph S. D'Antoni, New Orleans, Brucellosis.
M. Digby Leigh, Vancouver, B. C., Canada, Anesthesiology Today.
Carl A. Moyer, Dallas, Texas, Recent Advances in the Chemical Suppurative Therapy of Trauma, with Special Reference to Burns and Peritonitis.
Willard M. Allen, St. Louis, Functional Uterine Bleeding.
J. Ross Veal, Washington, D. C., Impaired Arterial Circulation.
John L. Parks, Washington, D. C., Lesions of the Vulva.
Horace L. Hodes, Baltimore, The Etiology of Epidemic Diarrhea of the Newborn.
Louis H. Newburgh, Ann Arbor, Mich., The Treatment of Edema.
John F. Holt, Ann Arbor, Mich., The Hand—An Index of Systemic Disease.
Lauren V. Ackerman, St. Louis, Lung Tumors—The Correlation of Their Pathologic Behavior with Their Clinical Behavior.
Arno E. Town, Philadelphia, Glaucoma: Mechanism, Types and Medical Treatment.
Dalton K. Rose, St. Louis, Hematuria.

In addition to the general assemblies, postgraduate symposiums will be given at the Hotel Biltmore and round table lunches will be held. The Oklahoma County Medical Society banquet, Monday evening at 7, will honor Dr. Ernest E. Irons, President, American Medical Association, Chicago, who will speak on "Welfare and Medicine." Registration fee, which includes all scientific and social activities, is $15.

OREGON

State Medical Meeting.—The Oregon State Medical Society will hold its annual meeting at the Elks Club, Eugene, October 12-14. The program includes the following out of state speakers:

Hugh T. Jones, Los Angeles, Geriatric Principles in Bone Surgery.
Verne R. Mason, Beverly Hills, Calif., Recent Contributions to the Modern Treatment of Heart Failure.
Albert G. Bower, Pasadena, Calif., Antibiotic and Sulfonamide Drugs.
Edward C. Pallette, Los Angeles, Peptic Ulcer, Its Surgical Treatment.

Panel discussions will be held at the Hotel Eugene on Poliomyelitis, Geriatric Orthopedics and Peptic Ulcer. On Friday at the annual banquet the address will be given by Hon. Ralph W. Gwinn, on "Socialism—American Variety."

GENERAL

Diabetes Association Appoints Executive Director.—The American Diabetes Association employed August 1 its first executive director, Mr. J. Richard Connelly, formerly assistant secretary of the Medical Society of the District of Columbia. He will also be business manager of the association's magazine, *ADA Forecast*.

Special Society Meetings.—At the recent meeting of the Executive Committee of the Southern Branch of the American Public Health Association, the next annual meeting was set for April 27-29, 1950 at Birmingham, Ala.——The American Society for Pharmacology and Experimental Therapeutics will hold its first interim meeting in Indianapolis November 17-19. The scientific sessions will be held at the Indiana University Medical Center.

Public Health Meeting.—The annual meeting of the American Public Health Association and its related organizations will be held October 24-28 in New York. Meetings will be at the hotels Statler and New Yorker except as otherwise noted in the program. The meetings will be divided into sections. The reception to the president of the association will be held Monday at 5 p. m. at the Hotel Statler. There will be technical exhibits.

General Marshall Heads Red Cross.—General George C. Marshall, former army chief of staff and secretary of state, was appointed by President Truman as president of the American Red Cross, effective October 1. General Marshall succeeds Basil O'Connor, who has headed the Red Cross since 1944.

General Marshall has been in retirement since January, following his service as secretary of state. Mr. O'Connor requested relief from this post to return to private affairs.

Symposium on the Nasal Septum.—The seventh annual scientific session of the American Otorhinologic Society for the Advancement of Plastic and Reconstructive Surgery, Inc., will be held in Chicago at the Palmer House, October 13, under the presidency of Dr. Samuel F. Kelley, New York. The scientific program will comprise a symposium on surgery of the nasal septum, the various phases of the subject being presented by Drs. Francis W. White, New York; Samuel Salinger, Chicago; Samuel Fomon, New York, and John D. Kernan, New York. A dinner will be held at 6 p. m. in honor of Dr. White.

Courses in Anesthesiology for General Practitioners.—The American Society of Anesthesiologists is sponsoring a program of refresher courses in anesthesiology for general practitioners, particularly those in rural areas. More than seventy training centers have been established, each being directed by a qualified and experienced anesthesiologist. All courses are individualized both as to scope and period of instruction to fit the needs and available time of the applicant. Courses are furnished as a service and in nearly all cases without fees. Participation is available to all doctors of medicine. Inquiries should be addressed to Stevens J. Martin, M.D., Chairman, Committee on Medical Schools and Post Graduate Education, St. Francis Hospital, Hartford 5, Conn.

Southwest Regional Cancer Conference.—The third annual Southwest Regional Cancer Conference will be held in Fort Worth, Texas, November 9, at the Blackstone Hotel, under the auspices of the Tarrant County Medical Society and the Tarrant County Unit, American Cancer Society. Guest speakers at the conference will include Drs. Merton M. Minter, internist, San Antonio; R. A. Willis, pathologist, London; Stanley P. Reimann, research pathologist, Philadelphia; Norman Treves, surgeon, New York; Dr. Danely P. Slaughter, surgeon, Chicago, and Hyman S. Sugar, ophthalmologist, Detroit. The one day conference will consist of morning and afternoon sessions, a clinical luncheon with an open forum question and answer period and a public meeting in the evening. There will be no registration fee. Information may be obtained by writing the Tarrant County Medical Society, 209 Medical Arts Building, Fort Worth 2, Texas.

"Circulation," New Official Organ of American Heart Association.—A new official monthly publication of the American Heart Association, to be known as *Circulation—The Journal of the American Heart Association*, will begin publication in January 1950, according to a joint announcement by Dr. Harold M. Marvin, New Haven, Conn., president of the association, and Mr. Henry M. Stratton, president of Grune & Stratton, publishers. The American Heart Association will terminate sponsorship of the monthly *American Heart Journal*, the association's official organ for nineteen years, with the December 1949 issue. Its present circulation, all within the medical profession, is 9,000 copies. "The needs of the members of the American Heart Association, and of the medical profession in general, require a larger official journal to keep pace with advances in the field of cardiovascular diseases," the announcement states. *Circulation* will be published in a larger format, allowing for the printing of 25 per cent more material in each issue, to give a balanced account of all phases of scientific heart information for the specialist, clinician and investigator. Dr. Thomas M. McMillan will continue as editor in chief. The annual subscription price will be $12 ($13 outside the United States).

Life Insurance Research Grants and Fellowships.—Applications for 1950 grants in aid of research on cardiovascular problems will be received by the Life Insurance Medical Research Fund up to Jan. 1, 1950. Support is available for physiologic, biochemical and pathologic research which bears on cardiovascular problems, as well as for clinical investigation in this field. Preference is given to fundamental research. It is expected that about $550,000 will be awarded for these grants. Applications for postgraduate fellowships for training in research in 1950-1951 will also be received by this fund up to Jan. 1, 1950. Preference is given to candidates who wish to work in the broad field of cardiovascular function or disease and to candidates who wish to work in institutions other than those in which they have obtained most of their experience. A doctor's degree (M.D. or Ph.D.) or the equivalent is required. The annual stipend varies, as a rule between $3,000 and $4,000, with larger amounts in special cases. At least twelve postgraduate fellowships will be available. New grants and fellowships will become available July 1, 1950. Application blanks may be secured from the Scientific Director, Life Insurance Medical Research Fund, 2 East 103d Street, New York 29, N. Y.

Prevalence of Poliomyelitis.—Reports of cases of poliomyelitis for the period indicated have been received from the National Office of Vital Statistics, U. S. Public Health Service.

Division and State	Week Ended Sept. 24, 1949	Week Ended Sept. 25, 1948	Median	Jan. 1 to Sept. 24, 1949	Jan. 1 to Sept. 25, 1948	Total ‡ March 19 to Sept. 24, 1949	Total ‡ March 20 to Sept. 25, 1948
New England States:							
Maine	24	2	2	382	31	382	31
New Hampshire	13	2	2	160	16	160	16
Vermont	2	2	2	92	17	90	16
Massachusetts	143	11	28	1,384	138	1,384	135
Rhode Island	13	3	3	107	5	107	5
Connecticut	32	6	11	422	80	419	79
Middle Atlantic States:							
New York	288	104	110	4,091	915	4,071	879
New Jersey	91	81	40	1,026	523	990	516
Pennsylvania	59	68	48	547	504	537	493
East North Central States:							
Ohio	125	58	58	1,341	825	1,335	816
Indiana	35	25	20	856	296	846	286
Illinois	135	94	93	2,326	709	2,310	702
Michigan	170	64	69	2,157	461	2,137	455
Wisconsin	87	40	40	749	324	735	324
West North Central States:							
Minnesota	121	116	45	1,478	789	1,439	781
Iowa	44	91*	14	876†	658*	163	645
Missouri	54	31	15	1,107	209	1,006	209
North Dakota	16	9	3	415	94	411	94
South Dakota	18	23	1	289	181	267	181
Nebraska	51	58	16	452	479	439	474
Kansas	32	26	8	577	227	551	224
South Atlantic States:							
Delaware	..	2	4	38	114	36	113
Maryland	18	6*	9	47†	59*	138†	58
District of Columbia	3	7	7	70	92	69	92
Virginia	13	39	19	250	415	240	413
West Virginia	20	5	5	292	121	285	116
North Carolina	7	85*	23	180	2,167*	153	2,143
South Carolina	5	14	4	86	309	73	301
Georgia	4	9	5	147	179	139	178
Florida	13	6	6	194	301	173	184
East South Central States:							
Kentucky	47	11	11	473	153	465	150
Tennessee	22	22	12	420	289	414	282
Alabama	8	13	4	196	167	183	155
Mississippi	10	14	5	269	128	258	126
West South Central States:							
Arkansas	26	5	2	845	119	834	117
Louisiana	14	6	6	194	106	182	100
Oklahoma	43	14	14	1,050	304	1,043	298
Texas	90	48	33	1,876	1,455	1,785	1,434
Mountain States:							
Montana	10	6	7	63	49	62	39
Idaho	15	3	3	360	93	347	66
Wyoming	7	..	1	90	65	90	65
Colorado	33	6	6	492	82	490	80
New Mexico	11	4	1	142	60	141	58
Arizona	11	14	5	124	106	113	105
Utah	30	10	10	170	69	154	57
Nevada	..	..	..	11	3	11	2
Pacific States:							
Washington	44	21	20	425	177	380	150
Oregon	13	12	12	163	110	147	94
California	122	310	54	1,088	2,982	1,399	2,950
Total	2,192	1,606*	.....	31,289†	17,646*	30,373†	17,296
Median, 1944-1948	.....	.....	1,158	8,882		13,307	

* Corrected figures.

† Current corrections made in cumulative totals: Iowa, add 12 cases week ended September 17; Maryland, add 1 case, onset in July, 5 cases, onset in August, weeks not specified.

‡ Last two columns show reported incidence since approximate average seasonal low week: 27 weeks.

Marriages

BENJAMIN HERBERT SULLIVAN, Jacksonville, Fla., to Miss Elsie Marie Swieky at Tampa, September 4.

HOWARD CLARENCE MACMILLAN, Pittsburgh, to Miss Jean Reid Dalzell of Wooster, Ohio, August 27.

ALAN J. LEONARD, New Orleans, to Miss Elizabeth Ann Adney of Lebanon, Ind., August 4.

SHELTON E. JOHNSON, Muskogee, Okla., to Miss Lillian McDonald of Eufaula, August 23.

HENRY J. H. SCHWARTZ, Pittsburgh, to Miss Emily H. Levine of Bayonne, N. J., July 10.

FRANCIS R. MANLOVE, Alden, Pa., to Mrs. Charles Warren Kluber of Gladwyne, June 14.

Deaths

Abraham Juda Levy ✦ Dixon, Ill.; born in Larnaca, Cyprus, July 23, 1896; Northwestern University Medical School, Chicago, 1930; certified by National Board of Medical Examiners; member of the International Organization of Medical Health Officers, Illinois Public Health Association, American Association on Mental Deficiency and the American Trudeau Society; fellow of the American Public Health Association; assistant director and director of health education, Straus Health Center, Jerusalem, Palestine, from 1931 to 1937; served as assistant director and clinician of Society for Crippled Children in Jerusalem; assistant epidemiologist with Illinois Department of Public Health in 1937; district health superintendent of the Illinois Department of Public Health from 1938 to 1944; affiliated with the Dixon State Hospital; author of "Community Health," "Sanitation" and "First Aid," books published in Hebrew; died August 26, aged 53, of coronary thrombosis.

Arthur David Jaques ✦ Lynbrook, N. Y.; born in Brooklyn in 1876; Long Island College Hospital, Brooklyn, 1898; past president of the Queens-Nassau County Medical Society and the Associated Physicians of Long Island; for many years school director of the town of Hempstead and health officer of the village of Rockville Centre and East Rockaway; during World War I sanitary supervisor of Long Island and during World War II consulting psychiatrist to draft boards, for which he received a congressional citation; affiliated with Meadowbrook Hospital, Hempstead, Mercy and South Nassau Communities Hospital in Rockville Centre; honorary director of the Lynbrook National Bank and of the Rockville Centre Savings and Loan Association; served as mosquito control officer in Nassau County; died August 4, aged 73, of coronary thrombosis.

Oscar Mandel Plotkin ✦ Houston, Texas; born in Chicago May 26, 1912; University of Illinois College of Medicine, Chicago, 1936; specialist certified by the American Board of Psychiatry and Neurology, Inc.; member of the American Psychiatric Association; joined the staff of the Veterans Administration, serving first in Hines, Ill., and then in Columbia, S. C.; served overseas with the Ninth Infantry Division during World War II; received the Bronze Star and the Presidential Unit Citation and was discharged in 1946 with the rank of major; formerly senior resident and member of the staff of the Elgin (Ill.) State Hospital; served on the faculty of the Baylor University College of Medicine; member of the staffs of Jefferson Davis, Hermann and St. Elizabeth hospitals; died recently, aged 36.

George Carroll Lockard ✦ Baltimore; University of Maryland School of Medicine, Baltimore, 1903; professor of clinical medicine at his alma mater; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; member of the American Association of Industrial Physicians and Surgeons; past president of the Medical and Chirurgical Faculty of Maryland and the Baltimore City Medical Society; a member of the Committee on Medical Care of Maryland; medical director of the Maryland Life Insurance Company; affiliated with the University Hospital, where he died August 7, aged 67, of cerebral hemorrhage.

Lewis Frederic Smead ✦ Toledo, Ohio; Johns Hopkins University School of Medicine, Baltimore, 1905; member of the founders group of the American Board of Surgery; member of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons, of which he was past treasurer and president; past president of the Academy of Medicine of Toledo and Lucas County; fellow of the International College of Surgeons and the American College of Surgeons; director of surgery from 1922 to 1943 and since 1944 chief of staff at the Toledo Hospital, where he died July 28, aged 71, of coronary thrombosis.

Ernest Elmer Smith ✦ Flushing, N. Y.; Jefferson Medical College of Philadelphia, 1914; specialist certified by the American Board of Radiology; member of the Radiological Society of North America and the American College of Radiology; served on the faculties of the New York Polyclinic Medical School and Hospital, where he was director of the school for x-ray technicians which he founded, and the New York Post-Graduate Medical School and Hospital; attending radiologist and director of radiology at St. Luke's Hospital in New York; died recently, aged 58, of heart disease.

Ferdinand Edward Dostal ✦ Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905; affiliated with the University Hospital, where he died August 8, aged 67.

Frank Church Dudley, Brooklyn; Long Island College Hospital, Brooklyn, 1907; member of the American Medical Association; on the staff of the Samaritan Hospital; died in Great Barrington, Mass., July 31, aged 71.

Henry Waller Freeman, Washington, D. C.; Howard University College of Medicine, Washington, 1898; died July 24, aged 74, of acute cardiac dilatation.

James Isaac Garrard, Milledgeville, Ga.; Bellevue Hospital Medical College, New York, 1893; member of the American Medical Association; affiliated with the Milledgeville State Hospital; died recently, aged 79, of heart disease.

August Joseph Ghiglione ✦ Seattle; Columbia University College of Physicians and Surgeons, New York, 1904; served as president of the staffs of the Providence Hospital and the Columbus Hospital, where he died July 18, aged 65, of cardiovascular renal disease.

George Courtenay Glass ✦ Hartford, Conn.; Yale University School of Medicine, New Haven, 1931; certified by the National Board of Medical Examiners; specialist certified by the American Board of Pediatrics; member of the American Academy of Pediatrics and the New England Pediatric Society; affiliated with the Manchester (Conn.) Memorial Hospital, Middlesex Hospital in Middletown and the Hartford Hospital; died July 5, aged 44.

David E. Green, Pleasanton, Kan.; University Medical College of Kansas City, Mo., 1895; member of the American Medical Association; died in the Mercy Hospital, Fort Scott, June 20, aged 80, of coronary disease and arteriosclerosis.

Paul R. Hahn ✦ Racine, Wis.; Northwestern University Medical School, Chicago, 1926; affiliated with St. Mary's and St. Luke's hospitals; member of the American Association of Industrial Physicians and Surgeons; died July 11, aged 49, of coronary disease.

Richard Connor Haislip, Harrisville, Ohio; Rush Medical College, Chicago, 1933; member of the American Medical Association; died July 29, aged 46.

Edward E. Haley, Buffalo; University of Buffalo School of Medicine, 1902; member of the American Medical Association; served as a member and chairman of the health board; formerly deputy health commissioner in charge of the division of communicable diseases; at one time member of the board of managers of the Buffalo City Hospital; affiliated with the Sisters of Charity Hospital; died July 30, aged 71, of bronchopneumonia and arteriosclerosis.

Ewin Petty Hall ✦ Fort Worth, Texas; Fort Worth School of Medicine, Medical Department of Fort Worth University, 1899; past president of the Tarrant County Medical Society; affiliated with Harris Memorial Methodist Hospital, St. Joseph's Hospital and All Saints Hospital, where he died July 7, aged 75, of nephritis and uremia.

William T. Hargis, Tell City, Ind.; University of Louisville (Ky.) Medical Department, 1894; member of the American Medical Association; formerly member of the school board and board of health; died July 8, aged 84, of carcinoma of the colon and liver.

Ashton Harwood, Binns Hall, Va.; Medical College of Virginia, Richmond, 1902; died recently, aged 75.

Quincy Robert Hauss, Sellersburg, Ind.; Eclectic Medical Institute, Cincinnati, 1887; for many years a trustee of Moore's Hill College, which later merged with Evansville (Ind.) College; at one time associated with St. Anthony's Hospital, Louisville, Ky.; died in St. Joseph's Infirmary, Louisville, August 10, aged 84, following a prostatic operation.

John Marion Hawk, Aubrey, Texas; Dallas Medical College, 1902; died in Denton in July, aged 78.

Hermon Hawkins ✦ Jackson, Tenn.; Vanderbilt University School of Medicine, Nashville, 1899; city health officer; affiliated with Memorial Hospital, where he died August 5, aged 89, of arteriosclerosis.

Alfred Joseph Hawks, Medford, Mass.; Boston University School of Medicine, 1892; for many years chairman of the board of health and city physician; died July 18, aged 80.

William Lewis Heeve, Baldwin, N. Y.; Eclectic Medical College of the City of New York, 1898; member of the American Medical Association; fellow of the American College of Surgeons; consulting surgeon to the Prospect Heights and Cumberland hospitals in Brooklyn; died August 14, aged 74, of coronary occlusion.

Russell Arthur Hennessey ✦ Memphis, Tenn.; Loyola University School of Medicine, Chicago, 1916; specialist certified by the American Board of Urology; member of the American Urological Association; fellow of the American College of

Surgeons; past president of the Memphis Urological Society; served during World Wars I and II; affiliated with the Baptist Memorial, John Gaston and Methodist hospitals and the Hospital for Crippled Adults; died in the Kennedy Veterans Hospital July 16, aged 55, of pneumonia and arteriosclerosis.

Anna M. Hennessy-Kinder, La Salle, Ill.; the Hahnemann Medical College and Hospital, Chicago, 1904; died August 2, aged 68, of acute coronary occlusion.

James Dorn Howell, Berthoud, Colo.; Louisville (Ky.) Medical College, 1889; affiliated with Longmont (Colo.) Hospital and Clinic; died June 29, aged 84, of cerebral hemorrhage.

Ivan Lewis Hunt, Scottville, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1906; member of the American Medical Association; at one time secretary of the Mason County Medical Society; served during World War I; formerly mayor of Scottville; for many years a member and past president of the school board; died June 14, aged 65, of coronary thrombosis.

Henry G. Isenberg, Westphalia, Mo.; Homeopathic Medical College of Missouri, St. Louis, 1896; died July 4, aged 80, of carcinoma.

Edwin Martin Johnson, Washington, D. C.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1898; a captain in the medical corps of the U. S. Army during World War I; surgeon and head of the medical clinic of the Veterans Administration until he retired in 1943; died in the U. S. Naval Hospital, Bethesda, Md., July 23, aged 76.

John A. Keho, Bay City, Mich.; Detroit College of Medicine, 1897; member of the American Medical Association; died July 30, aged 75.

Francis Boland King, Derry, N. H.; Tufts College Medical School, Boston, 1934; certified by the National Board of Medical Examiners; member of the American Medical Association; for many years medical referee for Rockingham County; affiliated with the Alexander-Eastman Hospital, East Derry; died in the Joseph H. Pratt Diagnostic Hospital, Boston, July 10, aged 45, of coronary occlusion.

Chrystal Christopher McCue, Goodells, Mich.; Detroit College of Medicine and Surgery, 1926; died July 5, aged 51, of coronary embolism.

Edward L. McElfresh, Point Pleasant, W. Va.; Starling Medical College, Columbus, 1893; member of the American Medical Association; served on the staff of Holzer Hospital in Gallipolis, Ohio; died July 23, aged 79.

Raymond Maurice Malone, Galion, Ohio; Ohio State University College of Medicine, Columbus, 1925; member of the American Medical Association; affiliated with Galion City Hospital; died July 15, aged 51, of coronary thrombosis.

Augustus L. Marshall, Indianapolis; Medical College of Indiana, Indianapolis, 1905; member of the American Medical Association; for many years president of the board of directors of the Sunnyside Sanatorium; died July 1, aged 73, of cerebral hemorrhage.

Robert Francis Mathews ✠ Worcester, Mass.; University of Pennsylvania Department of Medicine, Philadelphia, 1905; member of the American Urological Association; affiliated with the City and St. Vincent's hospitals; died July 16, aged 68, of heart disease.

Albert David Mayer ✠ New York; College of Physicians and Surgeons, medical department of Columbia College, New York, 1894; died July 29, aged 76.

Gage Clarence Moore ✠ Ottumwa, Iowa; State University of Iowa College of Medicine, Iowa City, 1934; served during World War II; affiliated with St. Joseph Hospital and Ottumwa Hospital, where he died July 17, aged 43, of heart disease.

Frank J. Morrison, Suffolk, Va.; University of the South Medical Department, Sewanee, Tenn., 1903; member of the American Medical Association; for many years resident surgeon for the Norfolk and Western Railroad, the Seaboard Air Line Railroad and physician for Planters Nut and Chocolate Company; affiliated with Virginia General Hospital, where he died July 17, aged 67, of myelogenous leukemia.

Ida Rebecca Lantz Muir, Spokane, Wash.; Northwestern University Woman's Medical School, Chicago, 1902; died July 11, aged 72, of bronchopneumonia.

Walter Howard Mulholland ✠ Heuvelton, N. Y.; University and Bellevue Hospital Medical College, New York, 1899; past president of St. Lawrence County Medical Society; died July 21, aged 76, of cerebral thrombosis.

Franklin Nelson Murphy, Woodhaven, N. Y.; Long Island College Hospital, Brooklyn, 1900; died at Lake Winnisquam, N. H., July 5, aged 73, of arteriosclerosis.

David Vance Myers, Dallas, Texas; Vanderbilt University School of Medicine, Nashville, Tenn., 1913; member of the American Medical Association; served during World War I; died July 19, aged 63, of arteriosclerotic heart disease.

Edgar Harris Myers, Coral Gables, Fla.; the Hahnemann Medical College and Hospital, Chicago, 1906; died in Chicago July 17, aged 68.

Archibald Cameron Nash, Cleveland; McGill University Faculty of Medicine, Montreal, Canada, 1899; affiliated with Glenville Hospital; died July 18, aged 73, of myocardial failure.

John Frank Newell, Hutchinson, Kan.; State University of Iowa College of Medicine, Iowa City, 1889; died in Grace Hospital July 27, aged 87, of heart block and benign hypertrophy of the prostate.

William Huggard Nugent, Waterbury, Conn.; Hahnemann Medical College and Hospital of Philadelphia, 1910; formerly practiced in New Haven, where he was on the staff of Grace Hospital; affiliated with Connecticut Children's Hospital, where he died July 25, aged 72, of coronary disease.

Archibald Ernest Olpp ✠ Union City, N. J.; University of Pennsylvania Department of Medicine, Philadelphia, 1908; served during World War I; school physician in Secaucus; formerly congressman; served as vice president of the staff of North Hudson Hospital in Weehawken, where he was formerly a chief surgeon; died in the Hackensack (N. J.) Hospital July 26, aged 67, of cerebral hemorrhage.

Samuel Edward Overmass, Gordon, Neb.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1902; died July 4, aged 77, of coronary occlusion and arteriosclerosis.

James Lenard Paris Sr.; Elizabethtown, Ill.; Chicago Medical School, 1928; died July 13, aged 62, of heart disease.

Daniel Frank Patchin ✠ Niagara Falls, N. Y.; University and Bellevue Hospital Medical College, New York, 1913; fellow of the American College of Surgeons; served during World War I; affiliated with the De Graff Memorial Hospital North Tonawanda, Mount St. Mary's Hospital and the Niagara Falls Memorial Hospital, where he died July 15, aged 58.

Fred William Patton, Mount Vernon, Ill.; Miami Medical College, Cincinnati, 1884; member of the American Medical Association; died in Jefferson Memorial Hospital July 9, aged 93, of senility.

David White Peppard ✠ Mansfield, Ohio; Western Reserve University Medical Department, Cleveland, 1901; on the staff of Mansfield General Hospital; died July 3, aged 72, of coronary occlusion.

Clarence Larimore Perry ✠ Miami, Fla.; Ohio State University College of Medicine, Columbus, 1924; member of the Southern Surgical Association and the Southeastern Surgical Congress; fellow of the American College of Surgeons; formerly fellow in surgery and first assistant in surgery at the Mayo Foundation in Rochester, Minn.; served in France during World War I; a member of the staffs of St. Francis Hospital and the Jackson Memorial Hospital, where he died July 6, aged 52, of coronary sclerosis.

Wilbur Moorhead Phelps ✠ Cape Charles, Va.; Howard University College of Medicine, Washington, D. C., 1898; Columbia University Medical Department, Washington, D. C., 1903; past president of the Augusta County Medical Society; served overseas and was awarded the Silver Star for distinguished service during World War I; colonel in the medical reserve corps of the U. S. Army, retired; for many years affiliated with the King's Daughters' Hospital in Staunton; died in Hyattsville, Md., July 28, aged 72, of heart failure.

Frank Leslie Phillips, Bronson, Mich.; State University of Iowa College of Medicine, Iowa City, 1931; past president of the Branch County Medical Society; died in the Sturgis (Mich.) Memorial Hospital July 16, aged 48, of nephritis, acute pericarditis and bronchopneumonia.

Harold Edward Phillips ✠ Indianapolis; Rush Medical College, Chicago, 1920; affiliated with the Veterans Administration; died July 14, aged 55, of carcinoma of the esophagus.

James Emory Poulton, Baltimore; Baltimore Medical College, 1906; served on the staff of the Maryland General Hospital, where he died recently, aged 69, of coronary thrombosis.

Abel J. Price, Thibodaux, La.; Medical Department of Tulane University of Louisiana, New Orleans, 1894; died July 11, aged 81.

Lucius Warner Prichard, Ravenna, Ohio; University of Wooster Medical Department, Cleveland, 1892; member of the American Medical Association; veteran of the Spanish-American War and World War I; died July 11, aged 84, of carcinoma of the intestine.

Henry M. Quinn, Copemish, Mich.; Detroit College of Medicine, 1907; member of the American Medical Association; died July 2, aged 67, of coronary heart disease.

Ernest Henry Rahn, Baltimore; Maryland Medical College, Baltimore, 1912; member of the American Medical Association; died July 4, aged 61.

George L. Renaud ✦ Detroit; Detroit College of Medicine, 1891; an Associate Fellow of the American Medical Association; died in Grosse Pointe July 8, aged 78.

Robert Wallace Richardson ✦ Brooklyn; McGill University Faculty of Medicine, Montreal, Canada, 1909; director of hospital services for the Bethlehem Steel Company; died July 8, aged 64.

Frederick Jackson Riley, Chicago; Barnes Medical College, St. Louis, 1901; served during World War I; formerly surgeon for the Southern Pacific Railroad and the Ringling Brothers Circus; for many years a school doctor for the health department; died in the Veterans Administration Hospital in Hines, Ill., August 6, aged 73, of perforated intestinal ulcer and peritonitis.

John Stephens Rollins, Prague, Okla.; St. Louis College of Physicians and Surgeons, 1917; Eclectic Medical University, Kansas City, Mo., 1918; past president of the Okfuskee and Lincoln counties medical societies; owner of the Rollins Hospital; died July 18, aged 62, of carcinoma.

Max Rosenberg ✦ Hillside, N. J.; L. R. C. P., L. R. C. S., Edinburgh and L. R. F. P. & S., Glasgow, Scotland, 1933; served during World War II; school physician; member of the staff of Beth Israel Hospital in Newark; died July 31, aged 44, of coronary occlusion.

John Hayes Rozzell, Gibson, Tenn.; University of Tennessee Medical Department, Nashville, 1902; affiliated with St. Mary's Hospital in Humboldt; died in Oursler Clinic-Hospital, Humboldt July 22, aged 77, of coronary occlusion.

Joseph A. Ruel, Haverhill, Mass.; Tufts College Medical School, Boston, 1911; member of the American Medical Association; served during World War I; school physician; on the advisory board and on the staff of Hale Hospital, where he died July 28, aged 70, of cerebral hemorrhage.

Lewis Lipman Seligman ✦ Dinuba, Calif.; University of California Medical School, San Francisco, 1917; served during World Wars I and II; died July 9, aged 55.

William Franklin Sharp, Vonore, Tenn.; Lincoln Memorial University Medical Department, Knoxville, 1918; died July 13, aged 64, of coronary heart disease.

Gilbert Joseph Sheekley, Cleveland; St. Louis University School of Medicine, 1947; resident in radiology at Peoples Hospital in Akron, Ohio; died July 23, aged 26, of congenital heart disease.

Jacob George Silewski ✦ Nanticoke, Pa.; Friedrich-Wilhelms-Universitat Medizinische Fakultat, Berlin, 1923; member of the American Diabetes Association; served as chief of the metabolic department at the Mercy Hospital; died July 21, aged 52, of heart disease.

Abraham Silverman ✦ Philadelphia; Baltimore Medical College, 1907; died in Lankenau Hospital July 23, aged 63, of squamous cell carcinoma of the nose.

Joseph Chester Silvers, Muncie, Ind.; Indiana University School of Medicine, Indianapolis, 1926; member of the American Medical Association; affiliated with the Ball Memorial Hospital; past president of the Delaware-Blackford Counties Medical Society; died July 3, aged 47, of cerebral hemorrhage and hypertension.

Paul Edward Simonds ✦ Riverside, Calif.; University of Southern California College of Medicine, Los Angeles, 1908; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; on the staffs of Riverside Community and Riverside County hospitals; died July 10, aged 72, of polycythemia and cerebral hemorrhage.

Thomas Kimball Slaughter, Wildwood, Fla.; Atlanta College of Physicians and Surgeons, 1899; member of the American Medical Association; died in Halifax Hospital, Daytona Beach, July 27, aged 73, of carcinoma of the throat.

Albert Micou Sneed, Toano, Va.; Medical College of Virginia, Richmond, 1912; member of the American Medical Association; county coroner; died in Bell Hospital, Williamsburg, July 29, aged 60, of cerebral hemorrhage.

Leo John Stafford ✦ Adrian, Mich.; Detroit College of Medicine, 1911; affiliated with the Bixby Hospital, where he died July 26, aged 60, of cerebral hemorrhage.

Martin Bernard Strange ✦ New Albany, Ind.; Indiana University School of Medicine, Indianapolis, 1937; served during World War II; on the staff of St. Edward Hospital; died July 15, aged 42, of coronary thrombosis.

Joseph Nelson Study, Cambridge City, Ind.; Bellevue Hospital Medical College, New York, 1883; member of the American Medical Association; died in the Reid Memorial Hospital, Richmond, June 13, aged 98, of uremia.

George Webster Sullivan ✦ St. Edward, Neb.; University of Nebraska College of Medicine, Omaha, 1908; served on the school board for many years; owner of St. Edward Hospital; died July 5, aged 68, of coronary thrombosis.

Frederick C. Sweeney ✦ East Jaffrey, N. H.; University of Vermont College of Medicine, Burlington, 1895; served overseas during World War I; for many years served on the town school board; died in the Monadnock Community Hospital in Peterborough June 22, aged 77.

Vernon John Telford ✦ Litchfield, Minn.; University of Minnesota Medical School, Minneapolis, 1930; affiliated with the Litchfield Hospital; died in the Eitel Hospital, Minneapolis, July 18, aged 50, of heart disease.

Major Edgar Threlkeld ✦ Miami, Fla.; University of Louisville (Ky.) Medical Department, 1919; past secretary of the Dade County Medical Society; died July 11, aged 57

Hans Lorenz Tretter ✦ Trenton, N. J.; Karl-Franzens-Universitat Medizinische Fakultat, Graz, Austria, 1922; member of the American Association of Industrial Physicians and Surgeons; died July 22, aged 51, of coronary thrombosis.

Charles Merton Turrell, Van Nuys, Calif.; Detroit College of Medicine, 1907; formerly practiced in Detroit, where he was on the staffs of the Deaconess and St. Mary's hospitals and physician for the police department; served during World War I; died July 9, aged 64, of uremia and pyelitis.

William Henry Von der Weyer ✦ St. Paul; Marquette University School of Medicine, Milwaukee, 1915; member of the American Academy of Orthopaedic Surgeons; fellow of the American College of Surgeons; affiliated with Gillette State Hospital for Crippled Children, St. Joseph's, St. John's and Miller hospitals; died July 26, aged 57, of coronary occlusion.

Granville, Hunt Walker ✦ Bellevue, Pa.; Jefferson Medical College of Philadelphia, 1902; president of the local board of health; served during World War I; affiliated with the Suburban General Hospital; died June 27, aged 72, of coronary occlusion.

John Wadell Warren, Edenton, N. C.; University College of Medicine, Richmond, 1907; formerly affiliated with the U. S. Public Health Service; died July 24, aged 65, of heart disease.

Salo Nordeman Weber ✦ New York; Cornell University Medical College, New York, 1909; specialist certified by the American Board of Internal Medicine; served on the staffs of the Misericordia, Mount Sinai, Gouverneur and St. Clare's hospitals; died in Beverly Hills, Calif., July 29, aged 64, of coronary thrombosis.

James Weathersby Welch ✦ Alexandria, La.; Tulane University of Louisiana School of Medicine, New Orleans, 1935; served during World War II; affiliated with the Baptist Hospital; died at Rockaway Beach, Mo., July 19, aged 37, of heart disease.

Ella Annis Wilder ✦ Middletown, Conn.; Boston University School of Medicine, 1923; member of the New England Obstetrical and Gynecological Society; on the staff of the Middlesex Hospital; died July 20, aged 52, of hypertensive heart disease.

Edith Sybil Hammond Williams, Kentfield, Calif.; Cooper Medical College, San Francisco, 1901; member of the American Medical Association; died in the Ross (Calif.) General Hospital July 4, aged 72, of heart disease.

Henry Allen Willis, Moncks Corner, S. C.; Medical College of the State of South Carolina, Charleston, 1926; member of the American Medical Association; died July 20, aged 47, of coronary thrombosis.

Stanley Mainard Wilson, Los Angeles; University of Southern California School of Medicine, Los Angeles, 1944; member of the American Medical Association; associated with the Hospital of the Good Samaritan; found dead in San Francisco July 10, aged 32.

Henry Winsor, Haverford, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1900; served during World War I; died in the Bryn Mawr (Pa.) Hospital July 26, aged 74, of coronary thrombosis.

Foreign Letters

BELGIUM

(From Our Regular Correspondent)

Sept. 10, 1949.

Selection of Students

The question of admission to universities is often raised in Belgium. With respect to medicine it is of great importance, and several attempts have been made to establish a preliminary selection before entrance to the first year of medical studies.

Professor Weekers discussed this question in a recent issue of *Revue Médical de Liège*. He said that the present system of admission without formality of students who hold certificates of graduation from secondary schools is inadequate. He proposed that every student present himself for a university examination the first year. The examination should be held by the examining board and the student should send to this board his certificate of secondary studies, accompanied by a final evaluation of the director of the establishment which issued the certificate. A bulletin should reproduce all the examination marks obtained in the different subjects each year. In this way the university examination board will be informed about the general educational status and previous training of the applicant. Also, the students will know that their application to their studies during the entire course will be carefully evaluated in the selection of students for further study at the university. Furthermore, it will be necessary to select the students in the first year of their studies at the faculty. At the end of the first year of studies the students should be subjected to an examination in the subjects which they have chosen and for which they consider themselves qualified. The applicants who pass the examinations will be permitted to continue their studies; the applicant will not be permitted to continue if he fails to pass once or twice, depending on what has been decided.

Conservative Surgery of the Hand

Belenger, of the Society of Surgery, presented an interesting report based on numerous observations collected in a clinic managing occupational accidents. He considers that only the total absence of irrigation or the crushing of all the tissues justifies a mutilating intervention and that, unless the wounds are seen late, there is no reason to put on a plaster cast. It is essential to preserve what can be preserved, to suture all that can be sutured, to cover with grafts all surfaces deprived of their covering, to reduce fractures, to close articulations and suture tendons, to immobilize completely the injured fingers and to hospitalize the victim for injections of penicillin.

During the healing of the wounds mobilization should be induced more or less rapidly, depending on the presence or absence of fractures or of sutures of tendons. A subsequent intervention for the amputation of tissues regarded as hindering or useless should be decided on only after cicatrization and maximal recuperation.

This manner of procedure permits amputations that are much more economical than those which are made when the injured person is first received for treatment, it reduces the duration of evolution of wounds formerly put in plaster casts and it gives the victim the maximum chance for functional restoration. Belenger also presented tables showing the duration of unemployment of patients with various lesions according to the methods of treatment.

Medical Diploma in the Grand Duchy of Luxemburg

The last general assembly of the Society of Medical Sciences of the Grand Duchy of Luxemburg approved a report addressed to the Minister of National Education, who is in control of the medical college. It is the custom in the Grand Duchy that students of medicine pursue their studies at a medical faculty of their choice in some foreign country as free students and then present themselves in their own country for the examinations prescribed by law. They prove their presence at courses in a medical faculty by presenting a certificate given them by the professor in charge of the faculty. The medical examining board of Luxemburg, which is composed of medical practitioners, passes on the examinations and delivers the diploma of doctor of medicine when justified.

Numerous inconveniences result from this state of affairs, and on the basis of a thorough discussion the assembly presented its conclusions in the report of Dr. Loutsch. In this it is demanded that the students be registered at the medical faculty where they study as regular students. This involves their passing their examinations at the end of a year and obtaining a diploma of doctor of medicine. The writing of a doctor's thesis will be optional. The present system of medical examinations (candidacy, doctorate) will be abolished. They will be replaced by a general examination to which will be admitted only candidates of Luxemburg nationality who hold a diploma of doctor of medicine issued by a faculty of medicine. Only the passing of this examination will give one the right to practice medicine in the Grand Duchy.

The Medical Days of Brussels

The twenty-third session of the Medical Days of Brussels was very successful. At the inaugural session the Minister of Health stressed the value of these annual meetings as a form of postgraduate instruction. Another problem which received the minister's attention was the reduction of the number of patients in the university hospitals, which is a result of the generalization of social insurance. This is catastrophic as regards medical instruction.

The academic lecture was given by Professor Leriche of the College of France, whose subject was "Surgery, as a Discipline of the Knowledge of Man." He retraced the successive efforts of this art, which perpetually renews itself and in so doing produces new discoveries.

Numerous scientific societies held their meetings during these Medical Days: the Belgian Medical Society of Physical Education and Sports, the Belgian League Against Rheumatism, the Belgian Society of Scientific Studies on Tuberculosis, the General Association of Belgian Dentists, the Medico-Surgical Society of Railroads and the National Union of Medical Reserve Officers.

The first International Congress of Associations for the Management of Diabetes was held within the framework of the Medical Days of Brussels. Professor Hoet of Louvain with the collaboration of Professor Joslin of Boston, of Sir Henry Dal of London and the world committees effected an unexpectedly successful session.

TURKEY

(From Our Regular Correspondent)

ANKARA, Sept. 5, 1949.

Transmission, Prophylaxis and Therapy of Oriental Sore

Oriental sore in Turkey is mostly found in the eastern and southeastern provinces of Diyarbekir, Gaziantep, Urfa, Mardin, Siirt and Elâziz, but isolated cases of infection with Leishmania tropica may be encountered anywhere in persons who have never been to these places. Only in the alien or native population of Ankara, Istanbul and Izmir has oriental sore not hitherto been encountered. In places where it is endemic the afflicted are mostly natives who neglect the rules of personal hygiene. They call it the "annula sore"; a single boil is called a male boil; if more than one occurs they are called female boils. The sore occurs mostly on the face, neck, arms, legs, hands and feet. The native population believe that it is caused by air, dust or water. Some say that the cause is house flies, mosquitoes and bedbugs; a few believe that the "Tatarcik"

(Phlebotomus papatasii) causes it. The Phlebotomus breeds in summer and autumn, which coincides with the increase in oriental sores. Most natives have had the lesion during childhood or youth and are immune. The new extensions of railway lines in the east and south have in recent years contributed to the spread of cutaneous leishmaniasis. To enlighten the people on the subject the Ministry of Health and Social Assistance makes use of posters, pamphlets, films, lectures and radio talks; unfortunately, the native population does not show much interest and cooperation is poor.

Dr. Celal Cansun, a bacteriologist of the Elâziz General Hospital, reported on his experiments with prophylaxis, intensive therapy and direct transmission of oriental sore. He immunized himself with material from lesions on the leg and hand of a member of the household. Giemsa stain of light scrapings from the epidermis of the sore revealed many Leish. tropica; Dr. Cansun vaccinated himself with this material, using a lancet, on the upper arm on March 3, 1947. In September a slight redness was visible at the vaccination area and a papule appeared; it was not accompanied with either itching or other irritation, but after a few days the epidermis thickened and hardened like parchment and the area became purple, pink and bright, with a red ring around it. The papule grew and swelled like a blister, and in February 1948 it matured; the surrounding regressing area increased in redness; a crust formed, so that the lesion looked exactly like an oriental sore. The skin of the lesion was now purple and soft and appeared to have pus underneath. There was no pain even when the area was pressed or stretched, and there was no fever or any other untoward condition. A few days later a bloody secretion was released through the epidermis, the pinkness and hardness disappeared and a crust, 2 cm. in diameter, formed. When the crust was removed, Prof. Hulusi Behdjet's (Istanbul University Medical School) "nail symptom" was clearly visible. Special care was taken to prevent a secondary infection. Within a few weeks the bloody secretion diminished, the crust regressed and the hardness disappeared. Two months later only a small scar remained, which proves that insects are not the only transmitters and that oriental sore can be transmitted by direct contact.

Dr. Celal Cansun has published his observations of 11 patients given the intensive treatment at the Elâziz General Hospital, 4 children between the ages of 2 and 6 and 3 men and 4 women between 18 and 51 years of age. Several patients had one single boil on the face and others several boils on the arms and legs. Leish. tropica was recovered in all 11 patients. When the crust of the boil had been carefully removed and iodine applied to the surrounding area, a subcutaneous injection of a 20 per cent solution of quinine hydrochloride and antipyrine was injected into the surrounding area of the boil. Then an alcohol and methylene blue dressing was applied. These injections were repeated every other day for one week. After five days the swelling and edema began to regress, the boil decreased in size and a crust formed. After one month, only the scar of the boil remained.

Good results have also been obtained with injections of quinacrine hydrochloride, but great care must be taken that it comes in contact with all parasites, as otherwise it is ineffective. Boils thus treated healed in twenty to twenty-five days. Autohemotherapy, twice a week with injections around the boil and also intramuscularly, has sometimes given good results. Silver nitrate, iodine, formaldehyde, zinc oxide, iodoform and potassium permanganate powder and ointment did not have any effect on the parasites. Cauterization and surgical treatment have also been tried, but scarring occurs, as with roentgen therapy and electrocoagulation. Arsenic, antimony and bismuth compounds given by mouth also had good effects.

The oriental sore takes a year to heal and leaves a large scar if untreated; if not well taken care of and a secondary infection occurs, it takes much more than a year and leaves a very ugly large scar.

At present oriental sore is an important public health problem in Turkey. The application of dichlorodiphenyltrichloroethane (DDT) against diseases transmitted by insects, such as flies, fleas, bedbugs, mosquitoes and Phlebotomus, has shown excellent results. In the southeastern provinces there has been a considerable decline in new infections with Leish. tropica, which tends to prove that it is transmitted to man by some parasite, probably Phlebotomus papatasii.

Haseki Sultan Hospital for Children

The old Haseki Sultan Hospital in Istanbul was established during the reign of Sultan Suleyman I (1495-1566). It was erected by Architect Sinan, who built the famous Suleymaniye Mosque. It then was a fully staffed and fully equipped hospital; it was in operation about two hundred years and then fell into disuse. Later Haseki Sultan, favorite wife of Sultan Mahmud II (1785-1839), established twenty pavilions for a two hundred bed hospital for women. Since the reorganization of Istanbul University in 1933, the hospital has also admitted male patients and children and, though a municipal hospital, has become a part of the Istanbul University Medical School's teaching unit.

Dr. Lutfi Kirdar, the mayor of Istanbul, had the more than 400 year old remains of the original hospital repaired and on May 29, 1948, opened the newly added one hundred bed children's hospital, where children up to 7 years of age are cared for at the expense of the municipality. The old building now houses the new hospital's outpatient department and child welfare clinic. Dr. Kirdar now plans to add buildings for a one thousand bed general hospital to meet the needs of Istanbul's growing population.

BRAZIL

(From Our Regular Correspondent)

SÃO PAULO, Aug. 18, 1949.

Canicola Fever

The first case of "canicola fever" in man observed in Brazil was recently reported by Prof. João Alves Meira and Dr. Marcelo Corrêa at Sociedade de Medicina e Cirurgia of São Paulo.

The clinical picture shown by this patient took the form of so-called benign catarrhal jaundice. However, the cerebrospinal fluid examination revealed a meningeal inflammation without any clinical symptoms of meningeal involvement. The definitive diagnosis was established by serologic examination (positive reaction to the agglutination test for Leptospira canicola) in the second or icteric stage of the disease. The result of the agglutination test for Leptospira icterohaemorrhagiae was twice negative in the blood and once in the spinal fluid. Prof. Alves Meira and Dr. Marcelo Corrêa emphasized the diagnostic importance of the nonicteric type of leptospirosis canicola, which occurs often in other countries.

Blood Groups in Brazilian Indians

The common blood groups, MN factors and Rh types have been determined in Caiuá and Bororo Indians of the state of Matto Grosso (Brazil), according to the researches of Drs. Ottensooser and Pasqualin. Tests carried out in 356 Indians (237 Caiuá and 119 Bororo) have revealed the O group in all of them. Among 134 Caiuá, 79.9 per cent had type M; 0.7 per cent had type N and 19.4 per cent type MN. Among 173 Caiuá and 103 Bororo not one Rh-negative person was found. The distribution of the Rh types in 135 Caiuá and 103 Bororo was almost identical. American Indians are similar to Mongolians with respect to some serologic characteristics, such as a scarcity or lack of the Rh-negative type, but there are also within this ethnical group high proportions of O, M and Rh_2 types. In Matto Grosso Indians these percentages are particularly high.

Correspondence

PNEUMOENCEPHALOGRAPHIA

To the Editor:—I wish to voice my disagreement with many of the statements in the paper by Casamajor, Laidlaw and Kozinn, "Validity of Pneumoencephalographic Diagnosis" (J. A. M. A. **140:** 1329 [Aug. 27] 1949).

The astounding conclusion of the authors, "Pneumoencephalography is a method of neurosurgical not neurologic diagnosis," is surely made without the realization that pneumoencephalography is one of the most valuable diagnostic procedures that one can use to differentiate the neurosurgical cases from the neurologic ones. I do not agree that there should be general doubt cast on the correctness of the diagnosis of a cerebral atrophic process by air studies. True, there are many borderline cases difficult to distinguish from normal, but in the main the diagnosis may be made with assurance. The opinions of the authors have been drawn from a study of pneumoencephalograms in children, yet their conclusions (which often are the only portions of a paper to be abstracted) are not specifically limited to children.

D. C. EAGLESHAM, M.D., Guelph, Ontario, Canada.

UNDECYLENIC ACID IN PSORIASIS

To the Editor:—Recently two articles concerning the use of undecylenic acid in psoriasis appeared in THE JOURNAL (Perlman, H. H.: Undecylenic Acid Given Orally in Psoriasis and Neurodermatitis, J. A. M. A. **139:** 444-447 [Feb. 12] 1949. Perlman, H. H., and Milberg, I. L.: Peroral Administration of Undecylenic Acid in Psoriasis, J. A. M. A. **140:** 865-868 [July 9] 1949). The original report stated, "A series of 17 patients with chronic psoriasis . . . were given gradually increasing doses of undecylenic acid by mouth for varying periods of time with definite improvement in the psoriasis. . . ." The second report stated that 41 psoriatic patients were treated. It also contained the following statements, "The standard dose eventually adopted was 45 pearls of 0.44 cc. each per day. . . . The ingestion was found free from serious or lasting toxic effects. . . . Of 40 psoriatic patients, 12 showed unequivocal improvement . . . 15 were somewhat improved, 10 evidenced no change and 3 had distinct aggravation of the disease." The concluding paragraph states, "Much further investigation will be needed before definite conclusions can be drawn."

It is far too early to evaluate this form of therapy. The number of patients treated and the period of observation is far from adequate for permanent conclusions. I have observed a few patients, and I did not discover improvement in any, although it is common knowledge that psoriatic patients will frequently respond to almost any new form of therapy. One patient with a healed gastric ulcer complained of diarrhea and severe abdominal pain after three weeks of treatment with much smaller doses than those recommended. The medication was discontinued, but one week later a severe intestinal hemorrhage developed, necessitating emergency hospitalization. Another patient, with localized patches of psoriasis of many years' duration, was admitted to the hospital with exfoliative dermatitis (generalized) following undecylenic acid therapy. These occurrences may have been coincidental.

I want to emphasize that the use of this drug is still in an early experimental stage. The reports have resulted in a flood of requests for this drug by discouraged sufferers from this disease. A deterrent to some of these patients was the expense of the 45 pills daily ($4.50 per hundred) recommended in these reports for an "indefinite period of time."

In all fairness, it should be pointed out that the object of the reports was merely to "submit the method and its many possible modifications for more extensive clinical evaluation and further fundamental study," and not for widespread and haphazard use of a drug, the rationale and systemic effects of which are unknown. As the authors pointedly observed, "Much further investigation will be needed before definite conclusions can be drawn."

HOWARD T. BEHRMAN, M.D., New York.

RADIATION CATARACTS

To the Editor:—The useful editorial in THE JOURNAL (Aug. 13, 1949) on "Radiation Cataracts" calls attention to one of the hazards in the development of this field of high energy radiations. There is one point that I believe should be corrected. Certain statements in the editorial give the impression that the cataracts occurred because the limits of exposure that were then considered permissible were too high. As a matter of fact, this had nothing to do with it, because, in each instance where a radiation cataract has developed, the eye had received much more radiation than the permissible dose.

In most instances the amounts received can only be estimated, as adequate measurements were not made at the time, and scientific enthusiasm not infrequently outran the maintenance of precautions. In reconstructing the circumstances of known exposures, the scientists involved agreed that they had probably received one or more acute exposures equivalent to 20 to 100 roentgen units in the region of the head and eyes in addition to what might be termed routine chronic exposures at accepted permissible levels. These exposures were incurred while the physicists were adjusting the cyclotrons and working inside the protective barriers while the instruments were in operation.

It is true that dosimetric methods for neutrons are as yet unsatisfactory. However, workers keeping within the permissible dose level as measured by presently available methods have not shown any evidence of harm. The ideal permissible dose for radiation is one comparable with the natural background radiation. However, this ideal cannot be practically achieved, and the established permissible dose levels are aimed to provide safety for the worker and still permit the development of important research.

The National Research Council appointed an *ad hoc* committee to investigate further the conditions and circumstances which had resulted in the development of cataract. At the same time, the Atomic Energy Commission, acknowledging its high degree of responsibility in the field of radiation effects, made arrangements with the National Research Council to underwrite the cost of these investigations and, in addition, asked the National Research Council to continue its committee. This committee was asked to examine the field thoroughly and to collaborate with other scientists in setting up an organized research program designed to fill the lacunas in our knowledge of neutron effects with particular emphasis on the cataract problem. The Atomic Energy Commission, in addition to supporting the committee, has supported a continuing survey of exposed persons as well as research related to the problem.

SHIELDS WARREN, M.D.
Director, Division of Biology and Medicine, United States Atomic Energy Commission, Washington 25, D. C.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Workmens Compensation Acts: Right of Industrial Commission to Order Autopsy.—This was an action to recover a compensation award by a widow who alleged that the death of her husband was caused by silicosis and superimposed tuberculosis. From the granting of an award, the employer appealed to the Supreme Court of Utah.

The deceased had been an employee of the defendant, Silver King Coalition Mines Company, and he died on April 8, 1947, after a considerable period of illness. No report of either the illness or death was furnished to the employer until after the deceased had been buried. About five weeks after the funeral, the Industrial Commission notified the employer's insurance carrier that a claim for compensation had been filed in which it was alleged that the death was caused by an occupational disease, namely, silicosis. On being informed of the claim, the insurance carrier made a rather extensive investigation as to the cause of death. On May 27 the widow was contacted and informed that the insurance carrier had interviewed the doctors who might have knowledge of the deceased's condition, but from the information available it was impossible to determine the cause of his death; the widow was also informed that the only way the cause of death could be definitely established was by means of an autopsy, and a request was made that such be permitted. The widow refused to consent to have the body disinterred. Further investigation was made by the insurance carrier, and a written demand was made on the widow for her consent. Not receiving a reply to this last demand, the insurance carrier made a written request to the Industrial Commission for an order permitting an autopsy. The widow was contacted by the Industrial Commission and advised as to the demand, but she remained adamant in her refusal to permit an examination. The commission, at that time, refused to order an autopsy out of deference to the widow's wishes. During an informal hearing on the matter, the commissioner made the following statement to the widow and to the agent or the insurance carrier: "As it stands, I will not order an autopsy. I request that both of you go in quest of more information on which the case may be decided." Some further efforts to determine the cause of death were made, and, after having used reasonable efforts to secure additional accurate information, the carrier informed the commission that evidence with respect to the cause of death was still uncertain and unsatisfactory and that accurate information could be obtained only by a postmortem examination. Subsequent to this, the commission, by letter dated June 24, 1947, notified the insurance carrier that, out of deference to the wishes of the widow and in view of information which seemed to be available in connection with the death of the deceased, the request for an autopsy was denied. Both the commission and the widow were advised prior to the denial of the order that, in the opinion of competent pathologists, a successful autopsy could be performed as late as six to eight months after death and any uncertainties as to the presence of a silicotic condition in the lungs could be removed.

The question for decision, said the Supreme Court, is whether or not the applicant, Dora R. Draper, should be prevented from pursuing her claim because the commission refused to permit an autopsy.

The law relating to occupational diseases provides (*Section 42-1a-47, U.C.A. 1943*):

"On the filing of a claim for compensation for death from an occupational disease where in the opinion of the Commission it is necessary to accurately and scientifically ascertain the cause of death, an autopsy may be ordered by any member of the Commission and shall be made by a person designated by such member of the Commission. The person requesting any such autopsy shall pay the charge of the physician making the same. Any person interested may designate a duly licensed physician to attend such autopsy, and the findings of the physician performing the autopsy shall be filed with the Commission and shall be a public record. All proceedings for compensation shall be suspended upon refusal of the claimant or claimants to permit such autopsy when so ordered. Where an autopsy has been performed pursuant to an order of any member of the Commission no cause of action shall lie against any person, firm or corporation for participating in or requesting such autopsy."

We find nothing in this section, said the Supreme Court, which gives any litigant an absolute right to have an autopsy performed. At the most, it liberalizes the common law rule and permits an autopsy to be performed when, in the opinion of the commission, it is necessary to accurately and scientifically ascertain the cause of death. Its purpose is to give litigants an opportunity to obtain and present to the commission scientific and reliable evidence on the causes of death. To allow sentimental reasons to be used as an excuse to prevent the examination not only defeats the purpose of the act but prevents the commission from obtaining what might be the true facts. We cannot, of course, extend this statute beyond the meaning of the terms employed, but we can determine the legislative intent within the phraseology of the section keeping in mind the purpose motivating the enactment.

Approaching the problem from a legislative aspect, the Supreme Court continued, we conclude that the legislature intended to make the decision ordering an autopsy discretionary with the commission and that the legislature further intended that in exercising its discretion the commission would not act in an arbitrary and capricious manner but would exercise its discretion rationally and reasonably. It would be unrealistic for us to conclude that the legislature intended that the commission had the power arbitrarily to deny the request and that such action was not subject to review by this court. Such an interpretation would clothe the commission with untouchable powers and extend to it authority not possessed by any other quasi-judicial agency. The statute prohibits the commission from proceeding with the hearing if the applicant refuses to permit an autopsy when ordered by the commission. However, there is no provision as to what shall be done if the commission arbitrarily fails to so order—apparently for the reason that the legislature assumed that permission would be granted by the commission when reasonably necessary for the purpose of determining the cause of death. In view of the fact that the commission in this case proceeded with the hearing without an autopsy, we must determine whether or not its denial of the request for the autopsy was arbitrary and capricious. If so, then the employer should be entitled to the same right as is granted by the statute against a noncomplying applicant.

After reviewing the medical evidence in some detail, the Supreme Court concluded that it clearly showed that the cause of death was doubtful and that the error of the commission in denying the autopsy was prejudicial to the substantial rights of the employer; prejudicial for the reason that the employer was prevented from obtaining what might have been the true reason for the death of the deceased, and it was denied the right to produce evidence which the statute contemplated would be made available by the commission. All the doctors who in any way participated in treating the deceased or who testified as witnesses at the hearing were uncertain as to the factors causing the acute myocarditis. There was disagreement as to whether or not silicosis might ever become a producing cause of heart disease; but those doctors who testified that in their opinion silicosis could be a contributing factor did not dispute the statement that only the advanced stage would bring about this result. Moreover, the only evidence in the record that silicosis or tuberculosis were contributing factors to the death is the death certificate executed by Dr. Nielsen and in his testimony on the witness stand. Both the certificate and the physician's testimony are uncertain in connection with the diagnosis of silicosis and a superimposed tuberculosis as being a contributing factor to the deceased's death. All the doctors had been interviewed by the insurance carrier before the commission denied the request for the autopsy. The evidence given the adjuster for the insurance carrier was in substance the same as that given at the hearing, and both the widow and the commission were informed of its substance and were informed that each doctor had expressed uncertainty about the cause of death. With this knowledge before the commission and with the further knowledge that a postmortem examination was the

only means by which a true cause of death could be established, said the Supreme Court, we are unable to conclude why any reasonable person or any reasonable commission would deny an autopsy. Conceding that the legislature intended to vest the commission with discretionary powers, the discretion we envisage the legislature had in mind is not the indulgence of a whim but is the exercise of sound judgment based on facts and guided by law. Undoubtedly the commission was actuated solely by the personal preference of the applicant and as between the two litigants the error was committed at the solicitation of the widow and the effect of the error must be accepted by her.

Accordingly the award in favor of the widow was annulled and the matter was remanded to the Commission for further proceedings consistent with the opinion. *Silver King Coalition Mines Company vs. Industrial Commission, 204 P. (2d) 811, (Utah, 1949).*

[In a companion case decided by the Supreme Court of Utah on the same day, the same question was raised. The court of that case said:

"Defendants in both cases seek to support the refusal to grant an autopsy on the grounds that if the Commission could properly find that silicosis was the cause of death then an order denying an autopsy would not be arbitrary. This statement does not correctly reflect the principle of law involved. If such were the law, then the statute would only be of value when there was no evidence concerning or no disagreement as to the cause of death. We believe the statute to be of importance in those cases where there is a difference of opinion.

"Litigants need not and the Commission should not rely on evidence less strong than positive knowledge, if the latter type is reasonably obtainable. If there is a strong probability that uncertainty can be removed, the right to produce what might be the best evidence should not be conditioned upon whether the applicant has testimony to establish a prima facie case. Rather, it should be based on whether all reasonable persons must conclude that an autopsy would establish with some degree of certainty, doubtful causes of death."

The award in this case in favor of the applicant was annulled and the matter remanded for further proceedings. *Silver King Coalition Mines Company et al vs. Industrial Commission, 204 P. (2d) 817, (Utah, 1949).*]

Malpractice: Physician's Liability for Mistake in Diagnosis; Failure to Make Blood and Urine Tests.—This was an action for damages alleged to have been caused by the negligence of the defendant physician as an employee of the defendant hospital. From a judgment for the plaintiff, the defendants appealed to the United States Court of Appeals, District of Columbia Circuit.

The plaintiff was found in an unconscious condition and removed by the police, on the advice of a physician, to the defendant hospital. The defendant physician, on duty in the emergency room, gave her an extensive physical and neurologic examination, but without either blood or urine tests, but discovered no abnormalities to account for the coma. After reviving her with ammonia, the doctor inquired whether she had been drinking. She replied, "Too much and too long." There was no odor of alcohol on her breath. She lapsed into unconsciousness and was revived a second time. The doctor concluded that she was suffering from acute alcoholism and released her to the custody of the police, who took her first to the Women's Bureau and then to another hospital. Five days later an operation was performed in which a blood clot was removed from her brain. At the time of the trial she was a complete invalid and bedridden.

Testimony for the plaintiff indicated that approved practice by physicians in this jurisdiction, exercising ordinary care and skill, requires blood or urine analysis as a prerequisite to a diagnosis of acute alcoholism in the case of an unconscious patient. There was also testimony that the plaintiff was a teetotaler.

The Court of Appeals said that it seemed clear from the evidence that the defendants had no part in causing the cerebral injury of the plaintiff and, therefore, they were not responsible for injury or damage from that cause. They were responsible only for such injury and damage, if any, as resulted from their negligence. This case, as it went to the jury, with evidence of negligence on the part of the defendants and the distressing condition of the plaintiff, required from the trial court a careful instruction to the jury defining the limit of the defendants' responsibility and the proper measure of damages. There was no instruction, however, to the effect that the only injury for which the defendants were liable in damages was such injury, including the aggravation of any existing condition, as flowed from their negligence and that it could not include damages for any other condition from which the plaintiff might be suffering. Holding that the omission of such an instruction was prejudicial error, the Court of Appeals reversed the judgment in favor of the plaintiff and remanded the case for a new trial.—*Central Dispensary and Emergency Hospital, Inc. et al v. Harbaugh (1949) 174 F. (2d) 507.*

Medical Motion Pictures

FILM REVIEWS

Over-Dependency (Mental Mechanisms Series, no. 3). 16 mm., black and white, sound, 1,145 feet (1 reel), showing time thirty-two minutes. Produced in 1949 by the National Film Board for the Mental Health Division of the Department of National Health and Welfare in cooperation with the Allan Memorial Institute of Psychiatry of McGill University and the Royal Victoria Hospital, Montreal. Procurable on rental or purchase from the National Film Board of Canada, 1270 Avenue of the Americas, New York 20, and 400 West Madison Street, Chicago 6.

The film introduces the audience to a young married couple, both of whom are employed and in responsible positions. The husband is quickly identified as immature and the wife protective.

The opening scenes show the husband ill and unable to go to work, although he has an important job assignment for that day. His wife makes arrangements for him to see a doctor, who gives him a thorough physical check-up and asks him about his personal life and childhood.

The medical examination does not reveal any physical disturbances. The doctor explains the psychosomatic relationships and begins the treatment of the patient through a series of interviews. The interviews are presented with a series of flashbacks to significant incidents during the patient's childhood which relate to his present complaints and which are based on a father who showed little interest in his son, an unsympathetic older brother and an overprotective mother and sister. As an adult he expects and gets the attention from a wife (older than he) while his mother continues to play an important part in his adult life and his wife has, in many respects, assumed the role of the mother. As the treatment progresses the capabilities of the patient increase, with improvement in his occupational and marital status.

The film is excellent in its presentation of everyday people and a patient who is not psychotic or extremely ill. The subtle use of almost obscure habits and mannerisms in the portrayal of the patient is well done, and the "mother" is convincing in her role. Explanations of the psychosomatic aspects of medicine could be improved, and the film does not always clearly relate the patient's childhood to his symptoms. Professional groups may be expected to criticize the failure to identify the doctor and his training and the absence of more explanation regarding the type of treatment and the number of therapy sessions.

The film is suitable for professional audiences, both medical workers and those in allied professions. It is also recommended for lay audiences if the showing is followed by a discussion led by a skilled moderator. The photography and narration are excellent.

Let Your Child Help You. 16 mm., black and white, sound, 375 feet, showing time ten minutes. Prepared in 1947 by Alice V. Keliher, Ph.D., New York University. Procurable on rental from New York University Film Library, 26 Washington Place, New York 3, or on purchase from Willow Distributing Co., Inc., 551 Fifth Avenue, New York 16.

This film illustrates specific ways in which parents and children can carry on household tasks together, such as preparing meals, setting the table and washing dishes, and how children can be given increased responsibility as they become older. The particular strength in this film is its portrayal of the small child's shift in attention and the mother's acceptance of these shifts. The fact that "Helen" does not know or feel

she is doing work is something that should be understood by mothers since the child may not be ready to assume responsibility.

The greatest value in the film lies in its use as the point of departure for discussion of the whole topic of responsibility. The film is recommended for parent education in preschool child growth and development, in well-child conferences, church groups of parents concerned with the interest of children, social workers and home economic groups. The narration is not well done and the quality of the voice is poor. Photography is fair to good.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS. *Parts I and II*, Feb. 13-15. Centers where there are approved medical schools and five or more candidates. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th Street, Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY, INC. *Oral.* Denver, Oct. 16-20. Sec., Dr. Curtiss B. Hickcox, 745 Fifth Ave., New York 27.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY, INC.: *Oral.* Cincinnati, Oct. 21-23. Sec., Dr. George M. Lewis, 66 East 66th St., New York 21.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written.* Oct. 17. Asst. Sec.-Treas. Dr. W. A. Werrell, 1 Main St., Madison 3, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral.* Chicago, June 3. Final date for filing applications is Jan. 1. Sec., Dr. W. J. German, 789 Howard Ave., New Haven.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY, INC. *Written and Review of Case Histories. Part I.* Various Centers. Feb. 3. Final date for filing applications is Nov. 5. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OPHTHALMOLOGY: St. Louis, Oct. 15-19; Boston, April. Sec., Dr. Edwin B. Dunphy, 56 Ivie Rd., Cape Cottage, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY. *Part II*, New York City, Feb. 9-10. Sec. Treas., Dr. Harold A. Sofield, Room 1856, 122 S. Michigan Ave., Chicago.

AMERICAN BOARD OF PEDIATRICS: New York City, Oct. 21-23; Chicago, Dec. 9-11. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

AMERICAN BOARD OF PLASTIC SURGERY: Examinations are given in June and November of each year in the home town of applicants. Sec.-Treas., Dr. Louis T. Byars, 400 Metropolitan Bldg., St. Louis, Mo.

AMERICAN BOARD OF PREVENTIVE MEDICINE AND PUBLIC HEALTH: *Parts I and II.* New York, Oct. 22-24. Sec., Dr. Ernest L. Stebbins, 615 N. Wolfe St., Baltimore.

AMERICAN BOARD OF PROCTOLOGY: November. Sec., Dr. Louis A. Buie, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY, INC. *Special Examination.* Chicago, Oct. 24-25. December, New York City. Sec., Dr. F. J. Braceland, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written.* Various Centers, October 26. Sec., Dr. J. Stewart Rodman, 225 S. 15th St., Philadelphia.

AMERICAN BOARD OF UROLOGY: *Written.* Various Centers, Dec. 3. *Oral and Clinical.* Chicago, Feb. 11-15. Sec., Dr. Harry Culver, 7935 Sunnyside Road, Minneapolis 21.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: *Examination.* Montgomery, June 27-29. Sec., Dr. D. G. Gill, 519 Dexter Avenue, Montgomery.

ARKANSAS: * *Examination.* Little Rock, Nov. 3-4. Sec., Dr. Joe Verser, Harrisburg. *Eclectic.* Little Rock, Nov. 3. Sec., Dr. Clarence H. Young, 1415 Main St., Little Rock.

COLORADO: * Denver, Jan. 3-6. Sec., Dr. George H. Gillen, 831 Republic Building, Denver.

CONNECTICUT: * *Examination.* Hartford, Nov. 8-9. Secretary to the Board, Dr. Creighton Barker, 160 St. Ronan Street, New Haven. *Homeopathic.* Derby, Nov. 8-9. Sec., Dr. Donald A. Davis, 38 Elizabeth St., Derby.

DELAWARE: *Examination.* Dover, Jan. 10-12. *Reciprocity.* Dover, Jan. 19. Sec., Dr. J. S. McDaniel, 229 State Street, Dover.

DISTRICT OF COLUMBIA: * *Examination.* Washington, Nov. 14-15. Sec., Dr. G. C. Rubland, 4130 E. Municipal Bldg., Washington.

FLORIDA: * *Examination.* Jacksonville, Nov. 27-29. Sec., Dr. Frank D. Gray, 12 N. Rosalind Ave., Orlando.

GEORGIA: *Examination.* Atlanta, Oct. 11-12. *Reciprocity.* Atlanta, Oct. 13. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta 3.

GUAM: *Endorsement.* Agana, Last Friday of each month. Sec., Capt. C. K. Youngkin, Dept. of Public Health, Guam, % F.P.O., San Francisco.

IDAHO: Boise, Jan. 9. Exec. Sec., Mr. Armand L. Bird, 305 Sun Building, Boise.

INDIANA: *Examination.* Indianapolis, June. Sec., Dr. Paul R. Tindall, 1138 K. of P. Bldg., Indianapolis.

IOWA: * *Examination.* Des Moines, Dec. 5-7. *Reciprocity.* Des Moines, Oct. 3, Nov. 7, Dec. 5. Sec., Dr. M. A. Royal, 506 Fleming Bldg., Des Moines.

KANSAS: Topeka, Dec. 8-9. Sec., Dr. J. F. Hassig, 905 N. Seventh St., Kansas City.

KENTUCKY: Louisville, Dec. 12-14. Sec., Dr. Bruce Underwood, 620 South Third Street, Louisville 2.

LOUISIANA: New Orleans, December. Sec., Dr. Roy B. Harrison, 1507 Hibernia Bank Building, New Orleans 12.

MAINE: Portland, Nov. 8-9. Sec., Dr. Adam P. Leighton, 192 State Street, Portland.

MARYLAND: *Examination.* Baltimore, Dec. 13-16. Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore 1. *Homeopathic. Examination.* Baltimore, Dec. 13-14. Sec., Dr. John A. Evans, 612 West 40th St., Baltimore.

MASSACHUSETTS: Boston, Nov. 15-18. Sec., Dr. George L. Schadt, 413 East State House, Boston.

MICHIGAN: * *Examination.* Lansing, Oct. 12-14. *Reciprocity.* Oct. 11. Sec., Dr. J. Earl McIntyre, 100 W. Allegan Street, Lansing 8.

MINNESOTA: * Oct. 18-19. Sec., Dr. Julian F. Du Bois, 230 Lowry Medical Arts Bldg., St. Paul 2.

MISSISSIPPI: *Reciprocity.* Jackson, December. Sec., Dr. Felix J. Underwood, State Board of Health, Jackson 113.

MISSOURI: *Examination.* Jefferson City, October 24-26. *Reciprocity.* Kansas City, October, 23. Exec. Sec., Mr. John A. Hailey, State Capitol Building, Jefferson City.

NEVADA: Carson City, Nov. 7. Sec., Dr. George H. Ross, 112 N. Curry St., Carson City.

NEW HAMPSHIRE: Concord, March 8-9. Sec., Dr. John S. Wheeler, 107 State House, Concord.

NEW JERSEY: Oct. 18-21. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

NEW MEXICO: * Santa Fe, Oct. 10-11. Sec., Dr. Charles J. McGoey, Coronado Bldg., Santa Fe.

NORTH CAROLINA: *Endorsement.* Asheville, Oct. 17. Sec., Dr. Ivan Proctor, 226 Hillsboro Street, Raleigh.

NORTH DAKOTA: *Examination.* Grand Forks, Jan. 4-6. *Reciprocity.* Jan. 7. Sec., Dr. C. J. Glaspel, Grafton.

OHIO: *Examination.* Columbus, December. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA: * *Examination.* Oklahoma City, June 7-8. Sec., Dr. Clinton Gallaher, 813 Braniff Building, Oklahoma City.

OREGON: * *Endorsement.* Portland, Nov. 4. *Written.* Portland, January. Exec. Sec., Mr. Howard I. Bobbitt, 608 Failing Building, Portland 4.

PENNSYLVANIA: *Examination.* Philadelphia or Harrisburg, January. Acting Sec., Mrs. Marguerite G. Steiner, 351 Education Building, Harrisburg.

PUERTO RICO: *Examination.* Santurce, March 7. Sec., Mr. Luis Cueto Coll, Box 3717, Santurce.

SOUTH CAROLINA: *Examination.* Columbia, Nov. 8-9. *Reciprocity.* First Monday of every month. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

SOUTH DAKOTA: * Sioux Falls, Jan. 17. Sec., Dr. C. E. Sherwood, 300 First National Bank Building, Sioux Falls.

UTAH: *Examination.* Salt Lake City, June. Sec., Dr. Frank E. Lees, 324 State Capitol Building, Salt Lake City.

VIRGINIA: *Examination.* Richmond, Dec. 2-3. *Reciprocity.* Richmond, Dec. 1. Sec., Dr. K. D. Graves, 631 First St., S.W., Roanoke.

WASHINGTON: * Seattle, January. Director, Department of Licenses, Mr. Edward C. Dohm, Olympia.

WISCONSIN: * *Examination.* Madison, Jan. 10-12. Sec., Dr. C. A. Dawson, River Falls.

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* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

COLORADO: *Examination.* Denver, Dec. 7-8. Sec., Esther B. Starks, 1459 Ogden Street, Denver.

DISTRICT OF COLUMBIA: Washington, Oct. 24-25. Sec., Dr. G. C. Ruhland, 4130 E. Municipal Bldg., Washington.

FLORIDA: *Examination.* Gainesville, Nov. 5. Sec., Mr. M. W. Emmel, University of Florida, Gainesville.

IOWA: *Examination.* Des Moines, Oct. 11. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

MICHIGAN: *Examination.* Detroit and Ann Arbor, Oct. 14-15. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing 15.

OKLAHOMA: *Examination.* Oklahoma City, April 11. Sec., Dr. Clinton Gallaher, 813 Braniff Building, Oklahoma City.

OREGON: Portland, Dec. 3. Sec., Mr. Charles D. Byrne, State Board of Higher Education, Eugene.

SOUTH DAKOTA: Vermillion, Dec. 2-3. Sec., Dr. Gregg M. Evans, 310 E. 15th St., Yankton.

WASHINGTON: Seattle, January. Director, Department of Licenses, Mr. Edward C. Dohm, Olympia.

WISCONSIN: Milwaukee, Dec. 3. Sec., Prof. W. H. Barber, Ripon College, Ripon.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1938 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

77:425-560 (April) 1949

Amino Acid Tolerance Tests in Children. H. Anfanger and R. M. Heavenrich.—p. 425.
Epidemic of Diphtheria in Athens, Greece, During Winter 1946-1947. C. Chroemis, N. Zervos, K. Padiatellis and others.—p. 437.
Results of Schick Testing Three Years After Injection of Protamine Diphtheria Toxoid. V. Ross.—p. 450.
Normal and Pathologic Physiology of Bone Marrow. W. W. Zuelzer. —p. 482.
Reticulogranuloma: Report of Case of Eosinophilic Granuloma of Bone Associated with Nonlipid Reticulosis of Skin and Oral Mucosa Under Clinical Picture of Hand-Schüller-Christian Disease. H. Pinkus, L. A. Copps, S. Custer and S. Epstein.—p. 503.

American Journal of Medical Sciences, Philadelphia

217:475-592 (May) 1949

Observations on Penicillin-Treated Cardiovascular Syphilis. J. Edeiken, M. S. Falk and H. P. Steiger.—p. 475.
*Therapy of Subacute Bacterial Endocarditis: Report of 24 Cases Treated with Penicillin. E. H. Drake and R. M. Denham.—p. 485.
Modification of Cardiac Output After Intravenous Injection of Hypertonic Glucose Solution. M. Segers and J. P. Walsh.—p. 494.
Mechanism by Which Intravenous Injections of Hypertonic Glucose Solution Cause Increased Cardiac Output. J. P. Walsh.—p. 498.
Amebiasis: Experience in the Johns Hopkins Hospital, 1936-1946. F. W. Davis Jr.—p. 505.
Subacute Thyroiditis, Struma Fibrosa, Struma Lymphomatosa: Clinical-Pathological Study. R. P. Lasser and D. M. Grayzel.—p. 518.
*Some Aspects of Hypertensive Disease of Pregnancy Treated by Splanchnicectomy. M. M. Peet and E. M. Isberg.—p. 530.
Secretory Response to Histamine in Individuals with Normal and Abnormal Gastric Mucosa. W. E. Ricketts, J. B. Kirsner and W. L. Palmer.—p. 539.
Gastroscopic Appearance of Gastric Mucosa in Peptic Ulcer. W. E. Ricketts, J. B. Kirsner and W. L. Palmer.—p. 542.
Diabetes and Vascular Disease in Youth. H. F. Root.—p. 545.
Studies in Hepatic Glycogen Storage: I. Adrenalin-Induced Hyperglycemia as Index of Liver Function. L. W. Kinsell, G. D. Michaels, H. A. Weiss and H. C. Barton Jr.—p. 554.
Effect of Benzoic Acid and Carinamide on Blood Penicillin Levels and on Renal Function. J. F. Waldo, J. M. Masson, Wan Ching Lu and Jeanne Tollstrup.—p. 563.
Normal Roentgenogram of Chest in Infants and Children. J. R. Hodgson. —p. 569.
Folic Acid and Antagonists in Neoplastic Disease. J. B. Thiersch and F. S. Philips.—p. 575.

Subacute Bacterial Endocarditis.—Drake and Denham treated 23 patients with subacute bacterial endocarditis, 12 males and 11 females between the ages of 10 and 65, with penicillin. Three of the patients less than 20 years of age had congenital cardiac lesions. The remaining 20 cases were of rheumatic causation. The total dose of penicillin varied from 1,800,000 to 194,000,000 units. The average daily dose was 800,000 units. Duration of therapy varied from sixteen to ninety-seven days. Variation in dosage and length of treatment was influenced partly by the response to therapy and partly by scarcity of penicillin during the early part of the study. The continuous intravenous method of injection was employed initially, to be replaced later by the intermittent intramuscular route. Five patients, 4 of whom had suffered one or more clinical relapses, died; 18 are alive and free from evidence of infection with subsequent periods of observation varying from five months to four years. An over-all mortality rate of 21.7 per cent for this series compares favorably with other series previously reported. Penicillin is the specific therapeutic agent of choice in the majority of cases. It is advisable to administer the drug in doses which will give a blood level five to ten times the minimal amount effective in vitro. In the treatment of relapses a substantial increase in both the daily dose and the duration of treatment should be made regardless of the in vitro sensitivity of the organism. Streptomycin should be employed in cases which involve gram-negative organisms or in which penicillin resistance has been demonstrated by in vitro laboratory tests. Sulfonamide compounds have proved to be far inferior to penicillin and at present are to be considered as therapeutic agents only after adequate penicillin and streptomycin therapy have failed.

Hypertensive Disease of Pregnancy.—Peet and Isberg treated 28 hypertensive women between the ages of 16 and 38 years by bilateral supradiaphragmatic splanchnicectomy and lower dorsal sympathetic ganglionectomy. These women subsequently experienced thirty-four pregnancies. Of 18 patients who began pregnancy with normal blood pressures, 17 gave birth to 18 normal infants; 15 of these women were still maintaining normal blood pressure at a recent examination, averaging 2.7 years since delivery and 6.3 years since operative intervention. On the contrary, of the remaining 10 patients who started pregnancies with blood pressure above 150 systolic and 90 diastolic, only 2 delivered living infants at term. In none of the 18 patients who responded to splanchnicectomy by maintaining normal blood pressure after operation and who subsequently became pregnant did toxemia of pregnancy develop. No splanchnicectomized woman suffered any late, harmful vascular effects as the result of pregnancy. Five women with toxemia superimposed on prepregnant hypertension have been treated by splanchnicectomy performed during the second trimester of pregnancy. Subsequent to operation in 2 of these patients the toxemias disappeared and normal blood pressure was achieved for the duration of the pregnancies and during a long postpartum follow-up period. In the remaining 3 cases the operation exerted no influence on the toxemia. In 100 of 452 hypertensive women on whom splanchicectomy was performed, elevated blood pressure was first noted at the time of pregnancy; in the remaining 352 in this series onset of hypertension had no relation to pregnancy. There was little variance in the disease pictures of the two groups, but there was significant difference in the over-all response to splanchnicectomy. Both groups responded well to the operative procedure, but the end results were definitely better for the women whose hypertensive state began during pregnancy. The young hypertensive woman who wishes to have children should first have the hypertensive vascular disease treated by splanchnicectomy. If she maintains normal blood pressure for one year after operation, she may become pregnant with reasonable safety and with excellent chances for giving birth to a normal infant.

American Journal of Psychiatry, New York

105:801-880 (May) 1949

One Thousand Unsuccessful Careers. A. W. Stearns and A. D. Ullman.—p. 801.
*Study of One Thousand Psychotic Veterans Treated with Insulin and Electric Stock. S. Paster and S. C. Holtzman.—p. 811.
Follow-Up Studies of Shock-Treated Patients. J. K. Morrow and J. P. King.—p. 815.
Seven Years of Experience with Modified Insulin Treatment in Neuroses and Early Psychoses. W. Sargant.—p. 821.
Orthopedic and Neurological Follow-Up Study of Vertebral Fractures in Shock Therapy. P. Polatin and L. Linn.—p. 825.
Effect of Electroconvulsive Therapy on Water Metabolism in Psychotic Patients. M. D. Altschule and K. J. Tillotson.—p. 829.
Myanesin in Electric Stock: Studies in Rabbits and Man. W. L. Holt Jr., M. Rinkel, M. Greenblatt and R. Anderson.—p. 834.
Note on Validity of Wechsler-Bellevue Scatter. G. R. Pascal and J. B. Zeaman.—p. 840.
Incidence of Allergy in Psychotic Reactions. R. M. McAllister and A. O. Hecker.—p. 843.

Psychotic Veterans Treated with Insulin and Electric Shock.—Paster and Holtzman report on 1,000 psychotic veterans who were given electric shock therapy, insulin shock therapy or a combination of the two in sequence following a period of observation during which they had revealed no tendency toward spontaneous improvement. The large percentage of social recoveries obtained in this group testifies to the efficacy of the shock therapies in the functional psychotic reactions incurred in wartime. The therapeutic superiority of insulin shock is revealed in the greater number of social recoveries obtained when it is used either alone or following unsuccessful treatment with electric shock. Insulin is more effective than electric shock

in the treatment of paranoid and catatonic schizophrenia. The remissions obtained with insulin treatment are more lasting. Psychotic reactions precipitated under the stress of combat responded somewhat better to shock therapy than did those precipitated under noncombat, environmental stress. The well integrated prepsychotic personality had a favorable prognosis. The favorable rate of recoveries reported in this study may be related to the fact that the veterans constituted a group in whom the psychotic reactions were precipitated under great emotional stress.

Annals of Surgery, Philadelphia

129:417-544 (April) 1949

Preliminary Report on Advantages of Small Stoma in Partial Gastrectomy for Ulcer. H. W. Porter and Z. B. Claman.—p. 417.
Operative Treatment of Pectus Excavatum. M. M. Ravitch.—p. 429.
*Treatment of Acute Anuria with Evaluation of Peritoneal Lavage. I. A. Fields, H. E. Martin, D. G. Simonsen and others.—p. 445.
Glucose Assimilation During Anesthesia and Surgery. M. D. Pareira and J. G. Probstein.—p. 463.
*Prophylaxis of Ovarian Cancer. H. Speert.—p. 468.
*Rationale of Therapy in Acute Vascular Occlusions Based upon Micrometric Observations. W. B. Martin, H. Laufman and S. W. Tuell.—p. 476.
Treatment of Carbuncles by Local Injection of Penicillin. T. H. Bate.—p. 494.
Complete Excision of Pelvic Viscera in Male for Advanced Carcinoma of Sigmoid Invading Urinary Bladder. A. Brunschwig.—p. 499.
Adamantinoma of Mandible: Case Report. D. Catlin.—p. 505.
Spontaneous Rupture of Esophagus. J. M. Beal Jr.—p. 512.
Congenital Intestinal Atresia. E. E. Jemerin and C. R. Halkin.—p. 517.
Multiple Lipomas of Stomach and Duodenum. N. W. Fawcett, V. L. Bolton and E. F. Geever.—p. 524.
Anomalous Insertion of Right Hepatic Duct into Cystic Duct: Report of Case and Review of Literature. M. W. Kobak and R. B. Bettman.—p. 528.
Primary Inflammation of Appendices Epiploicae with Review of Literature and Report of 6 Additional Cases. T. P. Marinis and J. H. Cheek.—p. 533.
Angiosarcoma of Colon with Case Report. C. A. Steiner and L. H. Palmer.—p. 538.

Peritoneal Lavage in Acute Anuria.—Fields and associates report treatment of acute anuria in 6 patients with potentially reversible tubular lesions and in 1 patient with acute glomerulonephritis. Four of the patients died. Those who lived probably would have survived without peritoneal or gastric lavage. Peritoneal lavage was effective in removing substantial amounts of nitrogenous waste products and helpful in adjusting a disturbed electrolyte pattern, especially potassium, an indirect means for supplying dextrose. The disadvantages of peritoneal lavage were the technical nature of the procedure, which required constant and expert supervision and special nursing, peritoneal contamination (appearance of bacterial organisms in the outflow fluid) in nearly all cases in which lavage was continued for more than four days and absorption of fluid from the peritoneal cavity, which occurred if hypertonic intravenous fluids were administered simultaneously. Gastric lavage, used as the primary lavage method in 1 case, was much less effective than peritoneal lavage but did not have the latter's disadvantages. Acute pulmonary edema was the immediate cause of death in 4 patients. In 6 of the 7 patients generalized edema developed. Peritoneal or gastric lavage is used only if the patient shows some deleterious effects from nitrogen retention or electrolyte disturbance, particularly hyperpotassemia.

Prophylaxis of Ovarian Cancer.—Speert studied case histories of the last 260 patients with cancer of the ovary seen in the Sloane Hospital to determine the proportion of persons who had had previous relevant operations. There were 67 who had undergone previously 87 such relevant operations: 52 lower abdominal, 24 vaginal and 5 mammary. There were 9 cases in which radiotherapy was used. Thus 26 per cent of patients had undergone previous operations which permitted either removal of the ovaries or their inspection or palpation with the patient under anesthesia. Some of the tumors appeared within so short a time after the original operation as to suggest the possibility of their having been present at that time. The author recommends that every opportunity be utilized for pelvic examination under anesthesia of all middle-aged or elderly women and that all palpable adnexal masses in postmenopausal women be considered an indication for exploratory laparotomy. Ovarian cancers have appeared in women subsequent to pelvic irradiation for benign conditions, but available data provide no clear evidence that radiant energy is carcinogenic for the human ovary.

Acute Vascular Occlusions.—Martin and associates employed direct micrometry of small caliber vessels in dogs to determine the effects of various therapeutic measures on the behavior of these vessels following main stem occlusions. Experiments with sympathectomized specimens indicate that the afferent and efferent fibers of both arteries and veins are largely responsible for the patterns of response following occlusions, while the pressure gradient of blood flow through the vascular tree becomes important only when the spastic impulses are weak enough to be overcome by the intravascular pressure. Such a situation accounts for venous engorgement during venous occlusion in the presence of increased tonus in the vein wall. Oxygen therapy was found to have no effect on vessel caliber. Papaverine hydrochloride was found to be of value in releasing some of the reflex arterial vasospasm in venous occlusion if used before thrombosis occurred. The drug was of value in arterial occlusions only when collateral arteries existed above the occlusion. Once an occlusion was released, the drug eradicated residual spasm in the small vessels. Tetraethylammonium chloride in non-shock-producing doses counteracted the vasospastic effects following acute venous occlusion in only 50 per cent of cases; in acute arterial occlusions it was entirely without value. Sludge formation occurs within a relatively short time after either arterial or venous occlusion. It appears to be a precursor to thrombosis. Heparin and dicumarol® prevent thrombus formation in such cases but do not alter the character of sludge appreciably. The fact that vasodilating agents are not capable of producing a favorable effect in thrombosed small vessels implies that the use of anticoagulants should be an integral part of therapy in acute main stem occlusions. Regional sympathetic denervation eradicates the pattern of small vessel spasm to an extent unequalled by the vasodilators. Once an occlusion is released, such drugs are usually able to counteract residual vasospasm. Regulation of arterial caliber following occlusion is primarily an expression of sympathetic stimulation and secondarily that of blood flow.

Archives of Dermatology and Syphilology, Chicago

59:367-492 (April) 1949

Dermatologist and Psychiatrist. A. H. Gottesman and K. Menninger.—p. 367.
History of Dermatology, 1847 to 1947. O. S. Ormsby.—p. 374.
Extensive Blue Patchlike Pigmentation: Morphologic Variant of Blue Nevus? Persistent Extrasacral Mongolian Blue Spot? Diffuse Mesodermal Pigmentation? H. Pariser and H. Beerman.—p. 396.
Steroid Hormones: Their Fungistatic and Genestatic Effect on Pathogenic Fungi. F. Reiss.—p. 405.
Practical Medical Mycology: Culture of Fungi as Office Procedure. J. W. Wilson and O. A. Plunkett.—p. 414.
Roentgen Ray Treatment of Eye: Further Experiences. H. S. Alden, J. W. Jones and J. Rankin.—p. 430.
*Role of Spectacle Lenses in Production of Cutaneous Changes, Especially Epithelioma. E. F. Corson, G. M. Knoll, H. A. Luscombe and H. B. Decker.—p. 435.
*Estrogenic Ointments: Cutaneous Effects of Topical Applications of Natural Estrogens, with Report of 321 Biopsies. J. J. Eller and W. D. Eller.—p. 449.
Measurement of Skin: President's Address. J. G. Hopkins.—p. 465.
Relation of Exit Dose and Other Dosage Factors to Roentgen Injuries. J. C. Shafer, C. B. Braestrup and J. K. Fisher.—p. 472.
Familial Pemphigus Vulgaris: Report of Case. O. B. Miller and L. J. Frank.—p. 484.

Cutaneous Changes from Lenses.—Corson and co-workers report 12 patients, 8 men and 4 women between the ages of 43 and 76, in whom cutaneous changes were believed to have been caused by the heat or chemical rays conducted to the cheek by spectacle lenses—a "burning glass" effect. In 7 of the cases the condition was proved by biopsy to be basal cell cancer, and in 2 cases it was clinically an epithelioma. Keratoses were present in 1 case and chronic actinic dermatitis in 2 cases. Refracted light conducted from the upper to the lower rims of spectacle lenses is observed to produce an elevation of temperature at the spot where it focuses on the skin. This focus is not always a perfect one and varies somewhat in shape and position, in direct accordance with changes in the source of light and with the movements of the person. The correspondence

of the focal area with the cutaneous changes would seem to be more than a coincidence. Even though exposure to sharp focus is brief, if it is repeated habitually it may exert a positive effect. It is believed that glasses without rims, which especially refract this beam, are largely responsible for these effects, but even this style of spectacles can be worn safely without structural change if rim black® is carefully applied to the upper or lower edges of the lenses.

Estrogenic Ointments.—The Ellers studied the cutaneous effects of topical applications of ointments containing a natural estrus-producing substance derived from the urine of pregnant mares on 36 persons, 30 women between the ages of 20 to 79 and 6 men aged over 55. The topical application of this natural estrogenic substance had a direct effect on the epidermis of postmenopausal women. No changes in the skin were observed in young women with normal endocrine function or in the men. The effect on the epithelium was proportionate to the concentration of the estrus-producing substance in the ointment and to the duration of contact. Concentrations of 242 and 484 international units per gram (7,500 and 15,000 international units per ounce) used by inunction, regularly produced definite and consistent proliferation of the epithelium. These effects were first noted at some time between ten and thirty days, reached their maximum in thirty to fifty days and did not progress thereafter. The proliferative changes of the epidermis were evidenced by an increase in the number of cell layers and the reappearance of the epidermal pegs. The epithelial cells themselves showed an increase in size of both nuclei and cytoplasm. Anaplasia, mitosis or other abnormal change were not noted. Vaginal smears from 17 postmenopausal patients, used as an indicator of systemic absorption, showed no changes in 4 cases, barely perceptible changes in 12 and a definite, but minimal change in 1. Less sensitive tissues, such as the mammary glands, showed no changes. The control inunction of white petrolatum free of the estrus-producing substance did not produce demonstrable miscroscopic changes in the skin. Minimal proliferative changes were induced by this ointment when used either by application or by inunction.

Archives of Internal Medicine, Chicago

83:249-362 (March) 1949

*Management of Lower Nephron Nephrosis: Report of 6 Cases. W. S. Hoffman and D. Marshall.—p. 249.
*Hyperchloremic Acidosis and Nephrocalcinosis: Syndrome of Pure "Lower Nephron" Insufficiency. E. M. Greenspan.—p. 271.
Extracellular Fluid in Cardiac Edema and Ascites. L. R. Ferraro, M. M. Friedman and H. E. Morelli.—p. 292.
Hepatic Function During Hypoproteinemia of Renal Disease. R. I. Boyd.—p. 298.
*Epidemic Pleurodynia: Clinical and Etiologic Studies Based on 114 Cases. J. J. Finn Jr., T. H. Weller and H. R. Morgan. —p. 305.
Purpura Hemorrhagica Associated with Sarcoidosis. C. A. Ribaudo, T. J. Gilligan and A. Rottino.—p. 322.
Pathogenesis of Circulatory Failure in Rocky Mountain Spotted Fever: Alterations in Blood Volume and Thiocyanate Space at Various Stages of Disease. G. T. Harrell and J. K. Aikawa.—p. 331.
Surgical Treatment for Hypertensive Complications of Advanced Renal Disease. E. C. Persike, R. W. Lippman, T. Addis and Others.—p. 348.
Anthropathology of Arterial Tension. B. H. Kean and J. F. Hammill. —p. 355.

Lower Nephron Nephrosis.—Hoffman and Marshall define lower nephron nephrosis as a syndrome of severe oliguria or anuria following an initial shocklike picture and producing renal insufficiency, which often progresses to death in uremia. Hemoglobin or myoglobin, or their derivatives, are less soluble in acid than in neutral or alkaline solutions; they tend to precipitate as casts in the lower nephron, where concentration and acidification take place, and may block the tubular lumens in this region or damage the tubular cells. The kidneys are edematous, the cortex being pale and swollen in contrast with the medulla, which is darker than normal. Microscopically, the principal lesion is confined to the lower cortex and boundary zone and consists chiefly of degeneration and necrosis of the cells of the ascending loop of Henle and distal convoluted tubules, along with interstitial edema and infiltration of cells. This picture has been seen oftenest after crushing injuries to muscles, after transfusions with incompatible blood and after intoxications with sulfonamide drugs, but it also has been described after other types of severe insults to the body, such as operative shock, hemorrhage, hemoglobinuric fever, chemical and thermal burns, uteroplacental damage, alkalosis and high altitude anoxemia. The authors treated 6 patients with lower nephron nephrosis by a regimen that included a deliberate induction of edema of nearly normal electrolyte composition for the purpose of diluting the accumulating intoxication products. Other measures were designed to keep the patient in a good state of nutrition. Five of the 6 patients recovered; the sixth died in uremia and heart failure five days after the onset of diuresis. Four of the recovered patients had complete restoration to normal renal function. One patient, a child 2 years of age, still had renal insufficiency nearly four months after the onset of diuresis. Observations lead to the belief that the major lesions are diminished renal blood flow and loss of specific function of the lower portion of the nephron. Recovery appears to be initiated by an increase in effective renal blood flow and to be continued more slowly by improvement in specific function of the damaged tubules.

Nephrocalcinosis.—Greenspan says that the term nephrocalcinosis has been used in recent years to designate bilateral generalized calcification within the renal parenchyma. On roentgenologic examination the calcifications are visible as clumps of submiliary, stippled, cauliflower-like calcium deposits in the renal medullas. This presentation is based on the observation and treatment of this unusual biochemical and clinical syndrome occurring in a man aged 44. His renal lesion was associated with an unusual form of chronic discrete lower nephron insufficiency manifested by isosthenuria, diminished ammonia excretion and fixed urinary alkalosis in the presence of a blood acidosis, hyperchloremia and relatively good glomerular function. The patient was successfully treated for almost three years with a regimen employing sodium citrate and citric acid. A brief discussion of the physiologic mechanism of lower nephron insufficiency is included, as well as a synopsis of the differential diagnosis of this lesion. The role of sulfathiazole as a possible etiologic factor in the production of nephrocalcinosis is discussed, because in the patient whose case is presented the disorder developed subsequent to treatment of pneumonia with standard doses of sulfathiazole.

Epidemic Pleurodynia.—Finn and his associates say that during the late summer and early fall of 1947, an epidemic acute febrile illness characterized by headache, pyrexia and paroxysmal pain in the region of the diaphragm occurred in Massachusetts. Clinically it closely resembled a malady first described in Iceland by Finsen in 1856, who called it "pleurodynia." The same syndrome has since been variously designated as "Bornholm disease," "epidemic muscular rheumatism," "acute benign dry pleurisy," "epidemic pleuritic pain," "Bamle disease" and "devil's grip." The last name was based on the description of the pain in the chest experienced by one of Dabney's patients in the first outbreak reported from the United States. The authors present the clinical features of 114 cases of epidemic pleurodynia observed at the Boston City Hospital during the summer of 1947. Complications included involvement of the central nervous system, orchitis and pericarditis. Efforts to isolate a virus from some cases in the present outbreak were unsuccessful. The various bacteriologic and serologic studies added no information regarding the etiologic basis of epidemic pleurodynia.

Archives of Pathology, Chicago

46:503-608 (Dec.) 1948

Cytologic Changes in Bronchogenic Carcinoma Following Treatment with Nitrogen Mustard (Methyl-Bis [Beta-Chloroethyl] Amine). E. A. Gaensler, D. G. McKay, P. F. Ware and J. P. Lynch. —p. 503.
Effect of Nitrogen Mustard in Mycosis Fungoides. M. Block and J. C. Murphy.—p. 519.
Bronchial Adenoma Producing an "Alveolar Cell Carcinoma" Pattern. J. H. Cheek and E. E. Muirhead.—p. 529.
Experimental Atherosclerosis: X. Effect of Desoxycorticosterone Acetate on Cholesterol Content of Blood, Aorta and Liver of Rabbit. M. Bruger and B. E. Lowenstein.—p. 536.
Silvering of Lepra Bacilli in Tissues. F. L. Blanco and G. L. Fite.—p. 542.
Splenic Cysts. H. T. Tamaki.—p. 550.
Effects of Folic Acid Deficiency and Folic Acid Antagonist on Chicks. E. Woll.—p. 559.

Archives of Surgery, Chicago

58:411-564 (April) 1949

*Hiatus Hernia. G. G. Richards and K. A. Crockett.—p. 411.
Incidence of Hiatus Hernia and Associated Lesions Diagnosed by Roentgen Ray. I. B. Brick.—p. 419.
*Differential Diagnosis of Hiatus Hernia and Coronary Artery Disease. A. M. Master, S. Dack, J. Stone and A. Grishman.—p. 428.
Granular Cell Myoblastoma of Anterior Rectus Sheath. S. S. Rogers. —p. 450.
Treatment of Peptic Ulceration by Vascular Ligation. W. Q. Wood. —p. 455.
Aspiration of Blood from Pericardium in Treatment of Acute Cardiac Tamponade After Injury: Further Experience, with Report of Cases. M. M. Ravitch and A. Blalock.—p. 463.
Tetanus Treated as Respiratory Problem. V. C. Turner and T. C. Galloway.—p. 478.
Acute Pancreatitis and Its Sequelae. T. J. Anglem and W. F. Lee Jr. —p. 484.
Pathogenesis of Postoperative Pulmonary Atelectasis: Experimental Study. R. T. Shields Jr.—p. 489.
Nonsuture Method for Vascular Anastomosis Utilizing Murphy Button Principle. H. H. LeVeen.—p. 504.
Lymphosarcoma of Duodenum: Report of Case; Review of Literature. M. M. Copeland and D. J. Greiner.—p. 511.
Benign Nonepithelial Tumors of Stomach. J. Rabinovitch, D. Grayzel, A. J. Swyer and B. Pines.—p. 529.
Surgical Forum. R. Elman.—p. 539.
Diseases of Growing and Adult Bone. J. A. Seigling.—p. 541.
Tuberculosis of Bones and Joints. A. DeF. Smith.—p. 546.
Infantile Paralysis. C. E. Irwin.—p. 561.

Hiatus Hernia.—Richard and Crockett say that 24 cases of hiatus hernia were observed at the Salt Lake Clinic during the last eighteen months. The ages of the patients varied between 33 and 68 years, but only 3 were under 45. There were 17 men and 7 women. Other reports indicate a greater frequency of this condition in women than in men. Two thirds of the 24 patients were overweight. All except 1 of the patients complained of either gastric of substernal pain; 7 of these had radiation of the pain into the left shoulder or arm. Only 1 had dysphagia. Two patients had gastrointestinal hemorrhages with anemia. The duration of symptoms was six months to twenty years. The average duration was five and one-third years. Seven patients had been treated for coronary heart disease, 5 for disease of the gallbladder and 7 for peptic ulcer; 7 received no definite treatment. Hiatus hernia must be kept in mind in any case of atypical angina pectoris, duodenal ulcer, dysphagia, disease of the gallbladder, anemia from gastrointestinal bleeding, or obscure upper abdominal pain or pain in the lower part of the chest which might be associated with increased intra-abdominal pressure. The index of suspicion has to be accompanied with a special technic of fluoroscopy if the true incidence of this disorder is to be appreciated.

Differential Diagnosis of Hiatus Hernia and Coronary Disease.—Master and co-workers point out that the differential diagnosis of hiatus hernia and coronary artery disease is of great practical importance, because hiatus hernia may produce symptoms simulating angina pectoris and occasionally acute coronary occlusion. The two conditions, which occur with increasing frequency in the same age group, may coexist; therefore the observation of one does not exclude the other. An intensive study of the cardiac status was made in 57 consecutive patients with proved hiatus hernia of the stomach. The examination included a complete history and physical examination, teleroentgenogram, roentgenoscopy, resting electrocardiogram including augmented unipolar limb and Wilson precordial leads, the two step exercise test and the 10 per cent anoxemia test. Evidence of organic heart disease was found in almost two thirds of the patients. On the basis of symptoms the patients were divided into four groups: group 1, 15 patients with purely gastrointestinal symptoms; group 2, 29 patients with both gastrointestinal and cardiac complaints; group 3, 3 patients with only cardiac complaints, and group 4, 10 patients with symptoms attributable to anemia secondary to hemorrhage. Hiatus hernia not infrequently may precipitate coronary insufficiency even in the presence of normal coronary arteries if hemorrhage, severe anemia or shock develops. The authors emphasize the value of functional tests for the recognition of coronary insufficiency and especially of the two step exercise test in the differentiation of these two conditions. A positive reaction to the two step test may be the only objective sign of coronary artery disease. Although uncomplicated hiatus hernia does not produce typical anginal pain on effort unless there is associated cornoary artery disease, exceptions do occur and objective functional tests are necessary for evaluation of thoracic pain. Hiatus hernia may produce pain referred through reflex autonomic pathways to the wall of the chest and the left arm. The functional tests in such instances do not yield evidence of coronary insufficiency.

Gastroenterology, Baltimore

12:355-544 (March) 1949. **Partial Index**

Construction and Use of Safe Diagnostic Optical Esophagoscope. R. Schindler.—p. 355.
The Joys of Taking a History: Three Case Reports. W. C. Alvarez. —p. 368.
Preliminary Report of Clinical Trial of Orally Administered Hog Duodenum Powder in Treatment of Chronic Ulcerative Colitis. M. H. Streicher, M. I. Grossman and A. C. Ivy.—p. 371.
The Pancreas: Contributions of Clinical Interest Made in 1947. R. Elman and R. A. Lemmer.—p. 375.
"Chronic Gastritis:" Study of Relation Between Mucosal Changes and Symptoms. W. E. Ricketts, W. L. Palmer and J. B. Kirsner. —p. 391.
Turbidimetric Estimation of Serum Colloids in Differential Diagnosis of Hepatobiliary Disease. F. T. Maher, A. M. Snell and F. D. Mann. —p. 394.
Analysis of 1500 "Routine" Proctosigmoidoscopic Examinations. H. H. Steele and C. H. Brown.—p. 419.
Alterations in Colonic Function in Man Under Stress. T. P. Almy, F. Kern Jr. and M. Tulin.—p. 425.
Thiamine Excretion Test as Gauge of Dietary Adequancy. G. H. Laing, F. W. Jones, D. Anderson and J. M. Beazell.—p. 450.
Gastric Excretion of Neutral Red as Influenced by Vagotomy. M. J. Gullickson and D. A. Campbell.—p. 454.
Hormonal and Vitamin Factors in Intestinal Absorption. T. L. Althausen.—p. 467.
Peptic Ulcer in Infancy: Report of Case with Hemorrhage and Perforation. B. Margolis, M. Valdes-Dapena and R. S. Boles.—p. 489.

12:545-720 (April) 1949

Recent Advances in Gastrointestinal Physiology. J. E. Thomas.—p. 545.
Nocturnal Gastric Secretion in Patients with Gastric Carcinoma: Comparison with Normal Individuals and Patients with Duodenal Ulcer and with Gastric Ulcer. E. Levin, J. B. Kirsner and W. L. Palmer. —p. 561.
*Influence of Smoking upon Management of Peptic Ulcer Patient. R. C. Batterman and I. Ehrenfeld.—p. 575.
*Effect of Intravenous Protein Hydrolysates on the Stomach. M. Zweig, K. A. Meyer and F. Steigmann.—p. 586.
Lethality Rate of Hematemesis and Melena Treated Non-Operatively (Meulengracht's Regimen) and Criteria for Surgical Intervention in Bleeding Peptic Ulcer. J. Pedersen.—p. 597.
Hepatitis Without Jaundice in Infectious Mononucleosis. R. M. Angle. —p. 617.
Bacteriological Examination of Duodenal Content with Aid of Special Tube. J. Tomenius.—p. 623.
Observations on Secretion of Acid by Mouse Stomach in Vitro. H. W. Davenport and V. Jensen.—p. 630.
Production of Ulcerative Colitis in Dogs by Prolonged Administration of Mecholyl. J. Wener, H. E. Hoff and M. A. Simon.—p. 637.
Experimental Evaluation of New Gastrointestinal Antiseptic—Sodium Phthalylsulfacetimide. D. Lehr.—p. 648.
Acid-Neutralizing Power of Several Protein Hydrolysates and Other substances Used in Ulcer Therapy. S. M Samis and F. Hollander. —p. 665.
Is Parietal Cell Secretion Inhibited by Acidosis? V. W. Logan.—p. 671.

Smoking in Management of Peptic Ulcer.—Batterman and Ehrenfeld investigated two problems in the relationship of tobacco smoking to the symptoms and course of the peptic ulcer syndrome: (1) the influence of smoking tobacco on the management of the peptic ulcer patient as measured by the effectiveness of antacid therapy and the incidence of acute exacerbations, and (2) the influence of smoking processed or partially denicotinized tobacco on the course of the peptic ulcer. Their observations were made on 108 patients. They found that patients who continued to smoke had a poor response to treatment, so that the effectiveness of antacid therapy was no greater than 47 per cent. The inadequacy of treatment was reflected in the high incidence (53 per cent) of acute exacerbations. Patients who discontinued smoking or never smoked had an excellent response to antacid therapy, so that the incidence of acute exacerbation decreased to 11.5 and 17.5 per cent, respectively. In a group of 28 patients refractory to an ambulatory regimen of antacid therapy when smoking regular tobacco, the use of a processed or partially denicotinized cigaret resulted in improvement of 22 of the patients, with the incidence of acute exacerbations decreasing from 53.5 to 29 per cent. Reinstitution of smoking tobacco of full nicotine content in 18 patients who had shown improvement with the partially denicotinized tobacco

resulted in decreased effectiveness of antacid therapy and an increase in the incidence of exacerbations to a level corresponding to the control level.

Effect of Intravenous Protein Hydrolysates on the Stomach.—Zweig and co-workers studied the effect of intravenously given protein hydrolysates on gastric acidity and motility. In 106 tests performed after injection of various protein hydrolysates increased gastric acidity was obtained in 55 per cent. Factors influencing the acidity were (1) the histamine content, (2) the p_H of the solution and (3) the nature of the diluent used with the protein hydrolysate. Protein hydrolysates in 5 per cent dextrose solution produced gastric stimulation in fewer instances than did those in distilled water. Gastric motility was unaffected by intravenous administration of protein hydrolysates. Neither vagotomy nor thoracic sympathectomy and splanchnicectomy inhibited the gastric response to parenterally given protein hydrolysates. Atropine sulfate in small doses given intravenously did not reduce the gastric acidity stimulated by the infusion of protein hydrolysates; a larger dose, 1/60 grain (1.08 mg.), noticeably decreased the acid response. Stimulation of gastric acid formation by intravenously administered protein hydrolysates is probably accomplished through (1) a relatively high histamine content, (2) an acid p_H, (3) direct action on the gastric glands by the hydrolysate itself or by a liberated hormone or (4) a combination of three foregoing factors.

Georgia Medical Association Journal, Atlanta

38:131-198 (April) 1949

History of Medical Association of Georgia 1849-1880. F. K. Boland. —p. 131.
Our Centennial Meeting. E. H. Greene.—p. 174.

38:199-232 (May) 1949

Value of Uterosacral Ligaments in Uterine Displacements. A. L. Evans and O. S. Cofer.—p. 199.
Catheter Loop Extraction of Ureteral Calculi. C. Eberhart and J. L. Campbell Jr.—p. 201.
*Oral Aureomycin Therapy for Chancroid: Report of Case. C. H. Chen, R. B. Dienst and R. B. Greenblatt.—p. 205.
*Chloromycetin in Therapy of Granuloma Inguinale. R. B. Greenblatt, V. S. Wammock, R. B. Dienst and R. M. West.—p. 206.
Hemolysis in Pernicious Anemia. W. E. Bloomer.—p. 208.
Health Problem in South as Seen by Leader in Organized Labor. W. C. Kendrick.—p. 210.
Should We Adopt Compulsory Medical Care Insurance? R. A. Hohaus. —p. 213.
British Story—First Hand. Elizabeth Wilson.—p. 216.

Aureomycin for Chancroid.—Chen and associates point out that aureomycin has a therapeutic range overlapping that of streptomycin. They have reported its amazing results in granuloma inguinale, which to that time was known to be resistant to penicillin and to be best treated with streptomycin. Aureomycin was given to a man aged 26, in whom clinical data, positive Ducrey skin test and negative reactions to Frei and Kahn tests justified the diagnosis of chancroid. Aureomycin capsules were then given orally with a daily dosage of 1 Gm. (250 mg. four times a day) for five days. The pain and soreness which had been the cause of his disability in walking left him completely the day following medication; the redness in the inguinal regions disappeared, though the swellings had not decreased substantially. The penile sore was dry and no longer tender. On the third day the inguinal swellings decreased to about half of the original size and the penile lesion completely healed, with shedding of the crust and epithelization. The inguinal swellings subsided by the seventh day. Toxic reactions were not observed during the course of treatment. It is obvious that after an illness of months, chances that spontaneous healing would occur in this patient within such a short time were slight. It is fair to attribute the results to aureomycin.

Chloramphenicol (Chloromycetin®) in Therapy of Granuloma Inguinale.—According to Greenblatt and associates, chloramphenicol (chloromycetin®) is a pure, crystalline antibiotic suplied in capsules containing 250 mg. to be administered orally. The arbitrary total dosage of 20 Gm., which the authors used in their first series of patients with granuloma inguinale, was chosen because it is comparable to the minimum effective dose of aureomycin and because it has been shown that approximately this amount of the drug is necessary to cure typhoid. The authors have used chloramphenicol in 5 patients with granuloma inguinale with excellent immediate results and without toxic effects. It will be necessary to follow these patients a long time, and to treat more patients with this disease, varying the schedule in order to ascertain the minimum amount of the drug which will produce a cure in the majority of the cases. This drug has the advantage over streptomycin in that it can be given orally and over aureomycin in that it has not caused nausea and vomiting.

Journal Industrial Hygiene & Toxicology, Baltimore

31:67-122 (March) 1949

Absorption and Elimination of Carbon Disulfide in Man. J. Teisinger and B. Souček.—p. 67.
Physiological Response of Man to Ammonia in Low Concentrations. L. Silverman, J. L. Whittenberger and J. Muller.—p. 74.
Short-Term Toxicity Tests on Mono and Di Methyl Ethers of Hydroquinone. H. C. Hodge, J. H. Sterner, E. A. Maynard and J. Thomas. —p. 79.
Theory and Pathology of Carbon Disulfide Poisoning. R. H. DeMeio, H. Brieger and M. H. F. Friedman.—p. 93.
Improved Animal Dusting Apparatus. F. Princi, F. Church and W. McGilvray.—p. 106.
Comparative Toxicity of Methacrylonitrile and Acrylonitrile. W. A. McOmie.—p. 113.
Observations on Acute and Chronic Toxicity of Toxaphene in the Dog. R. W. Lackey.—p. 117.

Journal of Investigative Dermatology, Baltimore

12:203-254 (April) 1949

Diodoquin as Topical Therapeutic Agent in Cutaneous Disease. W. Leifer and K. Steiner.—p. 203.
Adrenotropic Receptors of Human Skin. H. Janowitz, R. R. Sonnenschein and M. I. Grossman.—p. 205.
Exfoliative Dermatitis from Contact with DDT. E. L. Higgins and D. J. Kindel.—p. 207.
Importance of Inhalant Allergens in Atopic Dermatitis. L. Tuft.—p. 211.
Aqueous Vitamin A in Acne Vulgaris. D. M. Davidson and A. E. Sobel.—p. 221.
Relative Incidence of Candida Albicans on Skins of Persons With and Without Skin Diseases. R. M. Marwin.—p. 229.
Diffuse Lepra. M. E. Obermayer, S. C. Bonar and R. Rosenquist.—p. 243.
Physical Properties of Human Sebum. E. O. Butcher and A. Coonin. —p. 249.

Journal-Lancet, Minneapolis

69:155-196 (May) 1949

Poisoning in Children: Newer Methods of Treatment. W. W. Lueck. —p. 155.
Ovarian Tumors in Infancy and Childhood. T. C. Chisholm and O. S. Wyatt.—p. 160.
Some Problems in Dealing with Parents. W. Fleeson and E. K. Clarke. —p. 163.
Craniotabes. R. B. Tudor.—p. 165.
*Diphtheria Trends in Minnesota. S. C. Siegel.—p. 167.
Late Rickets—with Moderate Vitamin D Resistance. D. T. Lindsay. —p. 171.
Treatment of Recurrent Congenital Club Foot. J. D. B. Galloway.—p. 177.
Acute Bacterial Meningitis: Review of Therapy in 198 Cases at Minneapolis General Hospital. S. S. Scherling and E. S. Platou.—p. 181.
Serum Amylase Levels in Mumps. L. Bass and R. B. Tudor.—p. 188.

Trends of Diphtheria in Minnesota.—Siegel says that although diphtheria is no longer the serious problem it was formerly, the disease has not been completely eradicated. A table listing the diphtheria and poliomyelitis cases occurring in Minnesota in the years between 1937 and 1947, inclusive, shows that since 1942 diphtheria has been increasing. In six of the eleven years the cases of diphtheria have been more numerous than those of poliomyelitis. The author reviews 210 bacteriologically proved cases of diphtheria that were observed at the Minneapolis General Hospital in the years 1937 to 1947. Only 38 of the cases concerned children up to 4 years of age, 75 were between 5 and 14 years of age and 97 were 15 years of age or older. The author suggests that this shift in the age incidence of diphtheria may be due to the widespread immunization against diphtheria in infancy, which reduces the incidence of disease and of carriers and thereby decreases natural immunity. In the past, when diphtheria was rampant among the population, older persons maintained their immunity by being exposed to frequent small doses of diphtheria bacilli. Now, with relatively little diphtheria prevalent in the

community, one has to depend on artificial immunization. This is clearly shown by the numerous reports of the increased number of Schick-positive adults. The author believes that the shift of diphtheria to older age groups suggests that an immunization program covering a wider age group with occasional booster dosages is necessary. Some recommendations are given in regard to approved immunization procedures.

Journal of Nat. Cancer Inst., Washington, D. C.

9:379-452 (April-June) 1949. **Partial Index**

Blood Histamine in Leukemia and Erythremia. M. B. Shimkin, L. Sapirstein, F. R. Goetzl and others.—p. 379.
Dehydropeptidase Activity in Tumors. J. P. Greenstein and F. M. Leuthardt.—p. 389.
Carbamates in Chemotherapy of Leukemia: III. Relationship Between Chemical Structure and Anti-Leukemic Action of Series of Urethan Derivatives. H. E. Skipper and C. E. Bryan.—p. 391.
*Study of Colon of Apparently Well Women. M. Ortmayer and M. Connelly.—p. 399.
Effect of Local Roentgen Irradiation on Biological Behavior of Transplantable Mouse Carcinoma: I. Increased Frequency of Pulmonary Metastasis. H. S. Kaplan and E. D. Murphy.—p. 407.
Histochemical Demonstration of Esterase. M. M. Nachlas and A. M. Seligman.—p. 415.
Observations on Mitochondria of Normal and Neoplastic Cells with Electron Microscope. A. J. Dalton, H. Kahler, M. G. Kelly and others.—p. 439.

Study of Colon in Apparently Well Women.—Ortmayer and Connelly report statistical data obtained from the examination of the colon in 1,014 women who considered themselves well. In addition to the usual physical and laboratory examination, sigmoidoscopic and roentgenologic examinations of the colon were made. Since the detection of carcinoma or its possible precursors was the aim of this study, the polyps found by roentgen examination and proctosigmoidoscopy are first reviewed. In the 1,014 patients, only 2 such tumors were diagnosed by the roentgen method; 1 low in the ampulla, which had been seen previously at proctoscopy, and the other in the transverse colon. Polyps originating between the anal crypts and the external anal ring were found in 5 patients. Obviously, neither roentgen ray nor sigmoidoscopy were needed to find these, because they were either seen in the anal ring or were readily palpated and usually could be delivered externally. Nineteen polyps were found at proctosigmoidoscopy above the anal papillae in 18 patients. Statistically, the discovery of only 2 polyps by roentgen examination of the colon in 1,014 well women gives an incidence so low as to be insignificant. Routine use of the barium enema prior to roentgen study in the apparently well female population is scarcely worth the time, inconvenience and expense. Fortunately, a considerable proportion of the tumors of the colon (figures vary from 60 to 80 per cent) lie in the lower sigmoid and rectum accessible to the 25 cm. sigmoidoscope. All 19 of the polyps detected by this method were seen below the 20 cm. height. They all were under 1 cm. in size. One of these small polyps was definitely carcinoma, 3 were totally benign, 8 were probably benign and 7 were partly carcinomatous and partly benign. The authors consider that their detection of small polyps in the rectum or rectosigmoid in 1.8 per cent of apparently well women justifies routine sigmoidoscopy in cancer detection centers and in all thorough health surveys. This procedure should be followed at least until it is determined whether it is of practical value in the discovery of early (small) asymptomatic malignant growths. Routine roentgen ray study of the colon is not considered justifiable in asymptomatic subjects.

Journal of Neurophysiology, Springfield, Ill.

12:161-224 (May) 1949

Synchronization of Spontaneous Electrical Activity of Cerebrum by Barbiturate Narcosis. R. L. Swank.—p. 161.
Response of Mammalian Vestibular Neurons to Horizontal Rotation and Caloric Stimulation. B. Gernandt.—p. 173.
Characteristics of Electrical Activity of Human Corpus Striatum and Neighboring Structures. R. Hayne, R. Meyers and J. R. Knott.—p. 185.
Electromyographic Study of Spasticity. D. B. Lindsley, L. H. Schreiner and H. W. Nagoun.—p. 197.
Role of Brain Stem Facilitatory Systems in Maintenance of Spasticity. L. H. Schreiner, D. B. Lindsley and H. W. Magoun.—p. 207.
Effects of Changes in Ionic Environment on Action Potential of Sympathetic Ganglion. J. W. Saunders and J. D. Sinclair.—p. 217.

Journal of Nutrition, Philadelphia

37:393-546 (April) 1949. **Partial Index**

Utilization of Nicotinic Acid by Pregnant Women. E. I. Fraxier, T. Porter and M. J. Humphrey.—p. 393.
Determination of Early Thiamine-Deficient States by Estimation of Blood Lactic and Pyruvic Acids After Glucose Administration and Exercise. M. K. Horwitt and O. Kreisler.—p. 411.
Growth and Maintenance of Dogs Fed Amino Acids as Source of Dietary Nitrogen. R. H. Silber, E. E. Howe, C. C. Porter and C. W. Mushett.—p. 429.
Oral Manifestation in Rats Fed Synthetic Diets Deficient in Pantothenic Acid and Biotin: I. Methods and General Gross Symptoms. D. E. Ziskin, M. Karshan, G. Stein and D. A. Dragiff.—p. 457.
Long-Term Experiments at or Near Optimum Level of Intake of Vitamin A. H. C. Sherman and H. Y. Trupp.—p. 467.
Effects of Various Levels of Thiamine and Riboflavin Intake upon Utilization of Casein, Supplemented with Methionine. H. L. Mayfield and M. T. Hedrick.—p. 475.
Effect of Canning, Roasting and Corning on Biological Value of Proteins of Western Beef, Finished on Either Grass or Grain. H. L. Mayfield and M. T. Hedrick.—p. 487.
Comparative Effectiveness of Vitamin B_{12}, Whole Liver Substance and Extracts High in APA Activity, as Growth Promoting Materials for Hyperthyroid Animals. J. J. Betheil and H. A. Lardy.—p. 495.
Sulfur Amino Acid Requirement of Infant. A. A. Albanese, L. E. Holt Jr., V. I. Davis and others.—p. 511.
Effect of Oral Administration of Rutin on Blood, Liver and Adrenal Ascorbic Acid and on Liver and Adrenal Cholesterol in Guinea Pigs. E. Papageorge and G. L. Mitchell Jr.—p. 531.

Journal Pharmacology & Exper. Therap., Baltimore

95:421-536 (April [Part I]) 1949. **Partial Index**

*Effects of Feeding Uranium Nitrate Hexahydrate in Diets of Breeding White Rats. E. A. Maynard, C. Randall, H. C. Hodge and J. K. Scott.—p. 421.
Pharmacologic Studies on Causative Agent of Canine Hysteria. J. L. Radomski and G. Woodard.—p. 429.
Effect of Hypoxia on In Vivo Formation of Methemoglobin by Aniline and Nitrite. S. S. Spicer and P. A. Neal.—p. 438.
Adrenergic Blocking Drugs: IV. Antagonism of Epinephrine and Histamine with 2-(2-Biphenyloxy)-2'-Chlorodiethylamine Derivatives. E. R. Loew and A. Micetich.—p. 448.
Study on Mescaline in Human Subjects. K. Salomon, B. W. Gabrio and T. Thale.—p. 455.
Distribution of Radioactivity in Rats After Administration of C^{14}-Labeled Methadone. H. W. Elliott, F. N-H. Chang, I. A. Abdou and H. H. Anderson.—p. 494.
Studies on Fate of Nicotine in Body: VI. Observations on Relative Rate of Elimination of Nicotine by Dog, Cat, Rabbit and Mouse. P. S. Larson, J. K. Finnegan and H. B. Haag.—p. 506.
Control of Experimental Pneumonia with Penicillin: III. Inhalation Therapy of Established Pneumonia, as Related to Blood and Lung Levels. C. E. Wilson, S. H. Durlacher and E. A. Bliss.—p. 509.

95:1-216 (April [Part II]) 1949

Metabolism of Adrenaline. Z. M. Bacq.—p. 1.
Pharmacology of Adrenergic Blockade. M. Nickerson.—p. 27.
Interactions of Drugs and Plasma Proteins. A. Goldstein.—p. 102.
Anticholinesterase Drugs. G. B. Koelle and A. Gilman.—p. 166.

Effects of Feeding Uranium Nitrate Hexahydrate to Breeding White Rats.—According to Maynard and associates there is a double interest in the effects of uranium on the reproductive organs—first, because it is highly toxic heavy metal, and second, because it is radioactive. The plan of this experiment was to observe the effects on reproduction when weanling rats (aged 28 days) were maintained in pairs on diets containing 2 per cent uranium nitrate hexahydrate. A similar group of litter-mated rats were paired in the same fashion to serve as controls. Two groups of 50 pairs of rats were studied for seven months. The growth rate of both male and female rats receiving the 2 per cent uranium nitrate hexahydrate diet was notably depressed. An increased growth occurred, however, when the experimental rats were placed on the control diet seven months after the start of the experiment. Uranium feeding sharply reduced the number of female rats having litters. In addition, the experimental rats had fewer young per litter. When the experimental rats were replaced on the stock diet the females having litters were more productive than the control rats. Females which failed to have litters on the experimental diet did not have litters on the stock diet. Rats fed 2 per cent uranium nitrate hexahydrate exhibited a slightly greater mortality. Uranium nitrate hexahydrate feeding produces irregularity of the estrus cycle. Only 19 of 44 female rats had regular estrus cycles and regular matings while being fed the uranium compound. However, uranium, except in traces, does not cross the placental barrier.

Missouri State Medical Assn. Journal, St. Louis

46:319-388 (May) 1949

*Role of New Analgesic in Surgery. C. Costello and J. McDonald. —p. 333.
Foreign Body in Bladder: Report of Case. B. W. Andrews and M. Goldman.—p. 338.
Phytobezoars, with Gastric Ulcer, Complicated by Intestinal Obstruction. P. A. Knepper and R. B. Bristow.—p. 339.
Examination of Male for Sterility. W. F. Melick.—p. 344.
Double Symmetric Monsters: Thoracopagus Twins, Case Report. J. A. Ossman and H. M. Wiley.—p. 348.
Hoarseness. G. O'N. Proud.—p. 354.
What Are Common Types of Cancer? E. L. Keyes and W. Rindskopf Jr.—p. 356.

A New Analgesic in Surgery.—Costello and McDonald had gained the impression that the debilities which handicap a cancer patient during the terminal stage of his illness are often due more to the hypnotic effect of opiate analgesics than to the disease itself. It was the quest of an analgesic to be administered orally or parenterally which would relieve pain without producing untoward reactions and impairment of body functions that prompted the authors to study a new synthetic analgesic, methadone hydrochloride (adanon hydrochloride®). This analgesic is 6-dimethylamino,4,4-diphenyl,3-heptanone hydrochloride. It is a crystalline powder which is soluble in water and alcohol. The authors present experiences with the use of this drug in 137 patients who were treated at the St. Louis City Hospital on the Washington University surgical service and in the tumor clinic. Satisfactory analgesic effect was obtained in 94.1 per cent of the cases. The dose most commonly employed was 10 mg., and the average period of relief was four hours. Results indicate that, although methadone does not meet all the requisites of the "perfect analgesic," it has many advantages over other such drugs now commonly employed. Three cases are reported as examples of patients in whom treatment with methadone has been beneficial. The authors admit, however, that evidence suggests that the drug is potentially addictive.

New England Journal of Medicine, Boston

240:669-702 (April 28) 1949

*Treatment of Mental Illness at Home by Small Doses of Insulin: Follow-up Report and Appraisal of Results in 26 Cases. N. Cohen. —p. 669.
*Digitalis Bigeminy: Analysis of 50 Cases. E. L. Sagall and L. Wolff. —p. 676.
Streptomycin in Treatment of Extrapulmonary Tuberculosis: Early Results. K. Jellinek.—p. 680.
Practical Considerations of Clinical Oxygen Lack. C. S. Houston. —p. 683.
Oral Surgery. K. H. Thoma.—p. 686.
Regional Enteritis of Duodenum.—p. 692.
Benign Chondroblastoma of Femur.—p. 694.

Small Doses of Insulin in Treatment of Mental Illness.—Cohen maintains that there is a large group of patients who do not require hospitalization and whose mental condition lends itself to insulin subshock treatment. Results with this form of therapy in 12 patients were reported previously. The treatment has been continued, and the number of cases now totals 26. The treatment should be given by a physician who has had training in neuropsychiatry as well as in the shock technics. The initial handling of the patient's fears is frequently a project in itself, and psychotherapy is utilized in helping him accept the treatment. The patient, having fasted four to twelve hours, is given insulin by deep intramuscular injection of 5 to 15 units. The dose may be increased by about 10 units daily until mild hypoglycemic shock, manifested by lassitude, increased perspiration, hunger, thirst and somnolence, is produced. Usually 50 to 100 units of insulin is sufficient to cause appearance of the desired hypoglycemic manifestations in about an hour. The patient is kept in a state of hypoglycemia for thirty to ninety minutes, and the reaction is then terminated by the administration of sugared fruit juice followed by a meal rich in carbohydrates. All but 1 of the 26 patients showed improvement as the result of this treatment, and 17 recovered completely.

Digitalis Bigeminy.—Sagall and Wolff studied 183 cases of bigeminy with regard to the etiologic relationship between digitalis and the coupled rhythm. Bigeminy was associated with digitalis in 50 cases and unrelated to digitalis in 82. In 51 the relation was indeterminate. Bigeminal rhythm is common in patients with or without organic heart disease who have not received digitalis; in 39 per cent it is ventricular extrasystolic in mechanism. Bigeminal rhythm may be induced in patients with organic heart disease by digitalis, and it is almost always due to ventricular extrasystoles. The ventricular extrasystolic bigeminy associated with digitalis differs from that unrelated to digitalis in that the ventricular premature beats are more commonly multifocal and arise in the right ventricle. In non-digitalis bigeminy ectopic contractions arise more frequently in the left, or basal, portions of the ventricles. Digitalis bigeminy occurs in all types of heart disease and with a variety of basic rhythms, but more often it occurs as a complication of rheumatic heart disease and auricular fibrillation. Bigeminy may be induced by purified digitalis derivatives as well as the whole leaf product. Digitalis bigeminy is a sensitive manifestation of toxicity and may appear with a small increase in the maintenance dose. Bigeminy may be the only evidence of digitalis intoxication and may precede, follow or develop simultaneously with other manifestations of toxicity. Bigeminy may be a serious sign of digitalis toxicity and in some cases may herald sudden death.

New York State Journal of Medicine, New York

49:977-1104 (May 1) 1949

*Tetra-Ethyl-Ammonium Chloride in Peripheral Vascular Diseases and Allied Conditions: Its Uses and Limitations. M. M. Fisher. —p. 1033.
Pneumococcal Meningitis. J. K. Meneely Jr.—p. 1040.
Survey of 723 Cases of Cholecystitis and Cholelithiasis. R. Colp and L. J. Lester.—p. 1043.
The Heart in Myotonia Atrophica. S. H. Rinzler.—p. 1048.
Standards for Care of Chronically Ill. A. P. Merrill.—p. 1051.
Use and Abuse of Antithyroid Drugs. B. J. Ficarra.—p. 1055.
Preservation of Thromboplastin Suspensions in Frozen State. R. D. Barnard, G. B. Gordon and H. A. Weitzner.—p. 1057.
Symptomatic Treatment of Allergic Diseases with Neoantergan. E. Schwartz, L. Levin and I. M. Kurtz.—p. 1059.
Sinoauricular Bigeminy. M. Schlachman.—p. 1061.
Congenital Contracture of the Fifth Finger. R. Marton and O. Steinbrocker.—p. 1064.
Effect of Antireticular Cytotoxic Serum on Patients with Osteoarthritis. L. W. Granirer.—p. 1067.
Suggestion for Simplified Ophthalmoscope, Otoscope, Flashlight Diagnosis Instrument. W. A. Greene Jr.—p. 1068.
Bronchiectasis. L. Miscall.—p. 1070.

Tetraethylammonium Chloride. — Fisher treated 582 patients with peripheral vascular disease and allied conditions with tetraethylammonium chloride intravenously in doses varying from 50 to 500 mg. (0.5 to 5 cc.) usually producing the effects of a block of the autonomic ganglions. The higher the blood pressure, the smaller the first dose. After noting the patient's reaction to the first injection, the dose may be increased gradually by 1 cc. or more each time until the maximum effect is attained. Serious toxic effects were not observed with over one thousand five hundred injections. In none of the patients was a pulmonary infarct noted after treatment. There has been significant relief of pain in 52 patients with acute thrombophlebitis; in 26 of these patients, one injection was sufficient to give permanent relief from pain. Thirteen patients with sudden acute arterial occlusion showed rapid improvement following the use of tetraethylammonium chloride blocks, but results were poor in 12 in whom there was no element of vasospasm. As a diagnostic aid in selecting patients with essential hypertension and patients with peripheral vascular disease for sympathectomy tetraethylammonium chloride proved to be of particular value. In 12 patients with causalgic conditions and allied sympathetic disorders, the intravenous ganglion block helped to relieve pain and aided in diagnosing sympathetic involvement. Tetraethylammonium chloride is a powerful pharmacologic agent with the ability to lower the blood pressure acutely and to produce temporary weakness, which may last from one-half to two hours. A state of syncope following the intravenous injection of the drug was noticed only in 1 instance and was readily controlled with epinephrine. It is not advisable to use tetraethylammonium chloride in patients in any condition of shock, in which the blood pressure has already been depressed. It is not feasible as a routine treatment for hypertension, although it will relieve the symptoms of the complications of hypertension in many instances.

Northwest Medicine, Seattle

48:295-368 (May) 1949

Diagnostic and Therapeutic Considerations in Management of Acute Abdomen. W. H. Wangensteen.—p. 315.
Review of Certain Aspects of Pathologic Physiology of Cirrhosis of Liver. W. A. Ricker.—p. 319.
Treatment of Cerebral Palsy: Clinical Study in Use of d-Tubocurarine in Peanut Oil and Myricin. C. L. Holm, E. V. Olsen and R. S. Dow. —p. 320.
Congenital Diaphragmatic Hernia on Right Side. J. M. Boyles.—p. 324.
Anatomy of Hand in Relation to Tendon Repairs. H. M. Nichols. —p. 327.
Blood Phenol Levels in Uremia. M. P. Starr.—p. 330.
Gonococcic Peritonitis of Upper Abdomen: Subcostal Syndrome of Stajano; Fitz-Hugh-Curtis Syndrome. F. C. Massey and K. K. Sherwood.—p. 332.
Hemorrhage from Angioma Complicating Pregnancy. G. G. Davis. —p. 334.

Pediatrics, Springfield, Ill.

3:575-734 (May) 1949

*Observations on 117 Patients Operated on for Congenital Pulmonary Stenosis. J. F. Dammann Jr., S. Gibson and W. J. Potts.—p. 575.
Social Adjustment of Six Patients with Hemophilia Prior to and During Prophylactic Treatment. E. Cohen and R. L. Herrmann.—p. 588.
Anomalous Channel Between Aorta and Right Ventricle: Report of Case. R. C. Brown and J. D. Burnett.—p. 597.
Apical Diastolic Heart Sounds in Active Rheumatic Fever. S. Friedman and T. N. Harris.—p. 603.
Commentary on Natural Childbirth. F. W. Goodrich Jr. and H. Thomas. —p. 613.
Value of Rooming-In Experience in Pediatric Training. R. W. Olmsted, R. I. Svibergson and J. A. Kleeman.—p. 617.
Change in Thiocyanate and Sodium^{24} Spaces During Growth. F. X. Fellers, H. L. Barnett, K. Hare and H. McNamara.—p. 622.
*Changed Status of Diphtheria Immunity. P. Cohen, H. Schneck, E. Dubow and S. Q. Cohlan.—p. 630.
Penicillin Treatment of Diphtheria Carriers. S. Karelitz and V. A. Spinelli.—p. 639.
Intestinal Absorption of Vitamin A from Oily and Aqueous Media in Patients with Celiac Syndrome. W. H. Danielson, E. L. Binkley and H. D. Palmer.—p. 645.
Homologous Serum Hepatitis in Infants and Children. R. E. Moloshok, S. Karelitz and Lotte Strauss.—p. 651.

Congenital Pulmonary Stenosis.—Dammann and co-workers operated on 117 patients for congenital stenosis of the pulmonary artery. In 108 patients the congenital stenosis of the pulmonary artery occurred in conjunction with tetralogy of Fallot, in 6 patients with tricuspid atresia and in 1 patient with pulmonary valve stenosis and a patent foramen ovale. Diagnosis of typical tetralogy of Fallot is not difficult. Tricuspid atresia differs from tetralogy of Fallot in two respects: first, roentgenographic and fluoroscopic studies reveal the relatively large left ventricle and small right ventricle; second, tricuspid atresia is practically the only congenital heart lesion in patients with cyanosis in which left axis deviation is observed in the electrocardiogram. Potts-Smith technic whereby a side to side anastomosis between the aorta and a pulmonary artery is performed, was used in 104 patients, the Blalock technic in 1, and exploration alone in 12. Among the 105 patients in whom an aortic-pulmonary anastomosis was performed there were 10 fatalities, a mortality rate of 9.5 per cent. Of the 12 patients with exploration operations, 6 died. The over-all mortality in the entire series was 13.8 per cent. Cerebral anoxia was the cause of death in the majority of cases. At the time of writing the long term value of the operation cannot be assessed. The results to date have been generally satisfactory; they have been slightly less satisfactory in older patients with a right aortic arch than in patients with a left aortic arch. Excessive cardiac enlargement has occurred in a few instances. It seems that the safest time for operative correction is between the ages of 3 and 8 years, and that infancy is the most dangerous period.

Diphtheria Immunity.—Cohen and co-workers performed Schick tests on 683 pregnant and nonpregnant women from various sections of the city of New York and also on the babies delivered of the pregnant women. Two hundred and seventy-four women (40.1 per cent) were Schick positive and 409 (59.9 per cent) negative. Antitoxin titrations corroborated the observations that the great majority of the Schick-positive women have less than 0.01 of a unit of antitoxin per cubic centimeter of serum, indicating susceptibility to diphtheria. Analysis of the whole series revealed that previous childhood immunization did not seem to exert an effect on the adult status of immunity to diphtheria. Childhood attacks of diphtheria also apparently had little or no effect on the Schick test of the adult, either because antitoxin had been administered or the active immunity had been lost with the passage of years. Anergy of the young infants' skin to diphtheria toxin, noted by previous observers, was confirmed. Nearly half of the younger infants of 57 Schick-positive mothers were Schick-negative; the others, with 2 exceptions, had less intense reactions to the test than did their mothers. The Schick test of the mother is a much more reliable test of the infant's immunity to diphtheria than the baby's own reaction. While the increase of diphtheria morbidity has not been alarming in the United States, it is not wise or expedient to delay the correction of this lost or waning immunity among the present young adult generation until diphtheria assumes threatening epidemic proportions. The restoration of humoral immunity to diphtheria and the excitation of cellular immunity by periodic stimulating inoculations will cause a decline in diphtheria susceptibility and morbidity. These ends can be attained by continuing recall doses at periodic intervals during childhood and early adult life, thus converting the potential protection of cellular immunity into the active protection of the humoral immunity. In the case of women it may be wise to increase such immunity to an adequate level during pregnancy to safeguard the newborn with similarly adequate immunity.

Philippine Medical Association Journal, Manila

25:109-158 (March) 1949

Leukemoid Reaction in Tuberculosis with Report on 2 Cases. W. Vitug, J. R. Cruz, A. Guytingco and P. N. T. Mendoza. —p. 109.
Surgery of Biliary Tract. J. Estrada and P. T. Nery.—p. 115.
Transitory Pulmonary Infiltration (Loeffler's Syndrome). F. T. Roque. —p. 119.
So-Called Allergic Intestinal Bleeding Syndrome in Infants (Case Report). A. R. Ines-Tan.—p. 125.
Danger to Mother of Full Term Hydrocephalic Fetus. H. Acosta-Sison.—p. 131.
*Malaria Simulating Acute Appendicitis. A. B. Morales, A. L. Ortiz and L. S. Garcia.—p. 135.

Malaria Simulating Acute Appendicitis.—Morales and co-workers say that although Manson-Bahr states that subtertian malaria may simulate surgical conditions, he does not specify acute appendicitis as one of them. They have encountered cases of malaria manifesting symptoms of acute appendicitis. Before this study was made, they operated on 2 patients with a preoperative diagnosis of acute appendicitis but with normal appendixes. Response to quinine therapy confirmed the presence of malaria. The authors report 6 cases in which appendicitis had been suspected at first, but which were recognized as malaria prior to operative intervention. The occurrence of moderate or high fever, a positive history of previous attack of malaria, a palpable spleen and a normal white blood cell count or leukopenia are strongly suggestive of malaria, even when the abdominal signs and symptoms indicate a pathologic condition in the terminal ileum, cecum and appendix. The diagnosis of intestinal malaria in all 6 cases was confirmed by positive blood smear and effective antimalarial therapy.

Virginia Medical Monthly, Richmond

76:213-270 (May) 1949

Medical Care. H. B. Mulholland.—p. 214.
American Medical Association's Responsibility in Problem of Medical Care. W. B. Martin.—p. 214.
Rural Health. F. S. Crockett.—p. 217.
Ten Commandments of Prepayment. T. A. Hendricks.—p. 219.
Recent Trend in Treatment of Obesity. H. E. Ferguson.—p. 222.
Experiences with Low Sodium Diets. E. G. Scott.—p. 225.
Calcinosis: Report of Case. W. L. Wingfield and E. C. Toone Jr. —p. 230.
Rhabdomyosarcoma: Its Dissemination and Response to Radiation. J. P. Moore.—p. 234.
Radium Therapy for Lymphoid Hyperplasia of Nasopharynx. G. N. Thrift.—p. 239.
Transurethral Resection and Neurogenic Bladder. M. Malament and R. C. Bunts.—p. 243.
Diagnosis in Dermatology. W. H. Kaufman.—p. 247.
Cesarean Section: Report of 600 Cases. L. S. Pearce.—p. 249.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

Biochemical Journal, London

44:257-384 (No. 3) 1949. **Partial Index**

Influence of Pituitary on Phosphorus Metabolism of Brain. M. Reiss, F. E. Badrick and J. H. Halkerston.—p. 257.
Studies on Cholinesterase: Selective Inhibition of True Cholinesterase in Vivo. R. D. Hawkins and B. Mendel.—p. 260.
Changes in Extracellular and Intracellular Fluid Phases of Muscle During Starvation and Dehydration in Adult Rats. S. E. Dicker. —p. 274.
Frequency Distribution of Zinc Concentrations in Dental Tissues of Normal Population. D. B. Cruickshank.—p. 299.
Studies on Absorption of Proteins: Amino-Acid Pattern in Portal Blood. C. E. Dent and J. A. Schilling.—p. 318.
Metabolism of Sulfonamides. R. L. Hartles and R. T. Williams. —p. 335.
Fluorimetric Estimation of Riboflavin in Foodstuffs and other Biologic Material. E. Kodicek and Y. L. Wang.—p. 340.
Excretion of Synthetic Estrogens as Ethereal Sulfates and Monoglucuronides in Rabbit and in Man. S. A. Simpson and A. E. Wilder Smith.—p. 366.
Formation of Hydrogen Carriers by Hematin-Catalyzed Peroxidations: Reactions of Adrenaline and Adrenochrome. J. E. Falk.—p. 369.

British Journal of Cancer, London

1:1-160 (March) 1949. **Partial Index**

Mortality from Cancer of Skin and Lip in Certain Occupations. M. Atkin, J. Fenning, J. A. Heady and others.—p. 1.
*Treatment of Retinal Glioma. E. M. Japha.—p. 16.
Study of Connective-Tissue Reaction to Radiation. Sieve or Chess Method. B. Jolles.—p. 27.
Urinary Cholesterol in Cancer: Urinary Cholesterol Excretion in Cancer Patients and Control Subjects. M. M. Burchell, J. H. O. Earle and N. F. Maclagan.—p. 42.
Qualitative Study of Urinary 17-Ketosteroids in Normal Males and in Men with Prostatic Disease. A. M. Robinson and F. Goulden.—p. 62.
Cultivation of Tumors in Fertile Egg, with Special Reference to Associated Ectodermal Lesions of Chorioallantoic Membrane. J. G. Campbell. —p. 72.
Intranasal Administration of Mammary Tumor Milk Factor. A. M. Begg.—p. 88.
Attempt to Demonstrate Neutralizing Antibodies to Mammary Tumor "Milk Agent" in Mice. P. A. Gorer and L. W. Law.—p. 90.
*Inhibition of Carcinogenic Properties of Urethane by Pentose Nucleotides. P. N. Cowen.—p. 94.
Induction of Mutations by Carcinogen. L. C. Strong.—p. 97.
*Induction of Tumors with Nitrogen Mustards. E. Boyland and E. S. Horning.—p. 118.
Carcinogenic Activity of Lipoid Substances. I. Hieger.—p. 123.
Investigations on Serum Proteins in Rats During Development of Hepatic Tumors Due to Feeding p-Dimethylaminoazobenzene. C. Höch-Ligeti, H. Hoch and K. Goodall.—p. 140.
Experiments of Identification of 3: 4-Benzpyrene in Domestic Soot by Means of Fluorescence Spectrum. F. Goulden and M. M. Tipler. —p. 157.

Treatment of Retinal Glioma.—Japha reviews the literature on the treatment of retinal glioma and describes observations made on 19 patients seen at the Middlesex Hospital between 1929 and 1946. Surgical excision is the mainstay of therapeutic procedure in this condition. In all bilateral cases in this series the patients have had at least one eye excised—1 patient was sent for radiotherapy of the second eye, but the growth was already too far advanced and this eye, too, was removed. The child is alive without sign of recurrence of glioma five years later. In the three primary unilateral cases with treatment by surgical measures alone the patients are still alive and well 3¾, 5¾ and 6 years later. The operation consisted of an excision of the globe with as much of the optic nerve as possible. A table records the results of irradiation (radium molds or high voltage roentgen ray) in 15 cases, 11 primary and 4 recurrent. In the 11 primary cases 1 patient died and in the 4 recurrent cases 3 patients died. Thus 11 of 15 survived, but in some of the 11 less than four years have elapsed since treatment. Cataract has developed in some of the patients treated by irradiation. A minimum tumor dose of 3,300 r is considered essential, and overdosage (probably more than 4,500 r) is warned against.

Inhibition of Carcinogenic Properties of Urethane by Pentose Nucleotides.—Cowen shows that when pentose nucleotides are injected into mice receiving treatment with urethane (ethyl carbamate) the number of pulmonary tumors is only about half that otherwise resulting from urethane therapy. This experiment indicates that there may be some connection between the carcinogenicity of urethane and its leukopenic properties, because the carcinogenic effect is inhibited by a substance which causes leukocytosis.

Induction of Tumors with Nitrogen Mustards.—Boyland and Horning point out that recent experience has shown that many of the growth-inhibiting agents used in the palliative treatment of cancer are carcinogenic. They cause specific damage to cell nuclei and chromosomes and are able to induce mutations. After reviewing the literature on the carcinogenic effects of roentgen rays and of certain chemical carcinogens, the authors say that by analogy with previous observations the nitrogen mustards might be expected to have carcinogenic action. Two groups of 20 mice each were given weekly subcutaneous injections of nitrogen mustards. Of 14 mice which survived more than two hundred and fifty days, 10 had tumors, including pulmonary tumors, lymphosarcomas, a uterine fibromyoma and a spindle-celled sarcoma at the site of injection.

British Journal of Experimental Pathology, London

30:1-84 (Feb.) 1949. **Partial Index**

Rift Valley Fever; Neurotropic Adaptation of Virus and Experimental Use of This Modified Virus as a Vaccine. K. C. Smithburn.—p. 1.
*Hyperplasia of Parathyroids Associated with Osteitis Fibrosa in Rats Treated with Thiouracil and Related Compounds. J. Malcolm, W. E. Griesbach, F. Bielschowsky and W. H. Hall.—p. 17.
Thyrotropic Hormone in Thyrotoxicosis, Malignant Exophthalmos and Myxedema. H. D. Purves and W. E. Griesbach.—p. 23.
Rift Valley Fever; Transmission of the Virus by Mosquitoes. K. C. Smithburn, A. J. Haddow and W. H. R. Lumsden.—p. 35.
Factors Involved in Influenza Hemagglutination Reactions. W. Smith and M. A. Westwood.—p. 48.
Effect of Heat on Diphtheria Toxoid-Antitoxin Floccules. M. Barr. —p. 61.

Hyperplasia of Parathyroids in Rats Treated with Thiouracil.—Malcolm and co-workers state that, whereas many reports have discussed the effects of thiourea and related substances on the thyroid and the pituitary, no report has mentioned changes in the parathyroids. Recently long term experiments have provided them with material permitting an appreciation of the changes induced by goitrogenic agents in the parathyroids. This communication describes the changes and the simultaneous occurrence of osteitis fibrosa in rats treated with thiourea, thiouracil or methylthiouracil for long periods. After fourteen months or more of feeding of thiourea or related compounds (thiouracil and methylthiouracil), generalized osteitis fibrosa was found in 9 of 33 rats in association with enlargement of the parathyroids. The thyroid hyperplasia produced by thiourea and related compounds is always accompanied by enlargement of the parathyroids. This could be observed as early as three weeks after the beginning of treatment. It seemed obvious that this effect was due to an increased blood supply to both the thyroid and the parathyroid. By simultaneous administration of the goitrogen and thyroxine, the hyperplasia of both organs could be suppressed in short term (eight weeks) experiments. However, when goitrogen and thyroxine were given together for twelve months or more, the thyroids had retained their normal size and activity, but the parathyroids increased in size proportionately to the time of treatment, reaching in some cases the size of the thyroid. Hyperplasia of the parathyroid preceded by many months the appearance of bone lesions. The syndrome observed corresponds closely to the picture of osteitis fibrosa generalisata, or Recklinghausen's disease in human beings. The similarity is underlined by the importance of a time factor in both conditions.

British Journal of Ophthalmology, London

33:261-328 (May)1949. **Partial Index**

Pathogenesis of Concurrent Eye and Joint Diseases. E. Godtfredsen. —p. 261.
Ox Vitreous Humor. 2.—Hyaluronic Acid Relationships. A. Pirie. —p. 271.
Recession of Inferior Oblique. I. Lloyd.—p. 291.
Formation of Intra-Ocular Fluids. Studies of Urea Component of Aqueous Humor. E. J. Ross.—p. 310.

British Medical Journal, London

1:791-832 (May 7) 1949

Pathogenesis of Essential Hypertension. F. H. Smirk.—p. 791.
Role of Infection in Granulopenia. K. Robertson.—p. 799.
Instruction of Medical Student in Pediatrics: Insight Into Family Practice. W. S. Craig, F. C. Naish and M. F. G. Buchanan.—p. 801.
Intermenstrual Pain ("Mittelschmerz") and Time of Ovulation. P. L. Krohn.—p. 803.
Syndrome of Diaphragmatic Hernia and Anemia. A. D. Codounis. —p. 805.
Amebic Vaginitis. N. C. Sen.—p. 808.

Journal of Endocrinology, London

6:1-120 (April) 1949. **Partial Index**

Goitrogenic Effect of Aminothiazole and Reactions of Thymus and Lymphoid Tissue. C. Grégoire.—p. 14.
Metabolic Response to Thyroid Depressant Drugs in Animals Maintained in Cold Environment. R. A. Macbeth and R. L. Noble.—p. 28.
Urinary Pregnanediol Estimation as Test for Pregnancy. J. Henderson, N. F. MacLagan, V. R. Wheatley and J. H. Wilkinson.—p. 41.
Effect of Chronic Inanition on Gonadotropic Content of Pituitary Gland. L. M. Rinaldini.—p. 54.
"Diabetogenic" Activity of Growth-Promoting Pituitary Extracts in Rats. J. H. Gaarenstroom, J. Hublé and S. E. de Jongh.—p. 71.
Fructose and Citric Acid Assay in Secretions of Accessory Glands of Reproduction as Indicator Tests of Male Sex Hormone Activity. T. Mann, D. V. Davies and G. F. Humphrey.—p. 75.
Influence of Methyl-Testosterone upon "Endocrine Kidney." H. Selye and H. Stone.—p. 86.
Urinary Excretion of Neutral 17-Ketosteroids in Childhood. M. E. Wood and C. H. Gray.—p. 111.

Lancet, London

1:763-806 (May 7) 1949

Epidemic of Acute Nephritis. J. Fleming.—p. 763.
*Streptomycin and Promizole in Miliary Tuberculosis and Tuberculous Meningitis in Children. E. M. Lincoln and T. W. Kirmse.—p. 767.
Decamethonium Iodide (Bistrimethylammonium Decane Diiodide) in Anesthesia. G. Organe.—p. 773.
Effects of Decamethonium Iodide (C 10) on Respiration and on Induced Convulsions in Man. D. L. Davies and A. Lewis.—p. 775.
Handkerchiefs in Transfer of Respiratory Infection. K. R. Dumbell and J. E. Lovelock.—p. 777.
Is Insulin Antigenic? H. Hult and E. Jorpes.—p. 780.

1:807-848 (May 14) 1949

Origin of Placental Trophoblast and Function of Placental Gonadotrophin. I. Gordon.—p. 807.
Spontaneous Hypoglycemia. R. Hastings-James.—p. 814.
Decamethonium Iodide as Muscle Relaxant in Anesthesia. A. J. H. Hewer, B. G. B. Lucas, F. Prescott and E. S. Rowbotham.—p. 817.
Comparison of Decamethonium Iodide with d-Tubocurarine in Controlling Electrically Induced Convulsions. J. A. Hobson and F. Prescott. —p. 819.
Carcinoma of Parathyroid Gland with Hyperparathyroidism. O. L. V. de Wesselow and H. E. de Wardener.—p. 820.
Abdominal Injury from Lightning. R. J. Alcock and H. C. Fletcher-Jones.—p. 823.
Treatment of Seasickness Aboard Ocean-Going Ships. M. B. McEvedy. —p. 825.

Streptomycin and Promizole in Miliary Tuberculosis and Tuberculous Meningitis.—According to Lincoln and Kirmse the sulfones and streptomycin have been found effective to some extent in controlling tuberculosis. Meningitis and acute generalized hematogenous dissemination are two forms of tuberculosis suitable for investigation of the therapeutic effect of these substances, because both conditions have a high fatality rate. Promizole® (4,2'-diaminophenyl-5'-thiazolyl sulfone) was used by the authors in 7 patients with miliary tuberculosis. Clinical meningitis did not develop in any of them. Five patients have survived two to four years and are free from evidence of miliary tuberculosis. Ten patients with miliary tuberculosis were treated simultaneously with streptomycin and promizole.® One patient died after six days' treatment, and another died of a relapse from meningitis eleven months after the initial diagnosis of miliary tuberculosis. No relapse of miliary tuberculosis has occurred in the survivors of either group. Eighteen patients with tuberculous meningitis were treated with intramuscular and intrathecal streptomycin and with promizole by mouth. Thirteen patients were alive three to twenty-one months later. There were no serious neurologic sequelae. In 3 cases relapse occurred twenty-five to forty-three days after completion of therapy. Tubercle bacilli fully sensitive to streptomycin were cultured from the cerebrospinal fluid in each of the 3 cases during the first week of relapse. Relapses were diagnosed on the basis of cerebrospinal fluid findings in the absence of neurologic signs and symptoms. Thus there is evidence that the addition of promizole® to streptomycin is of value in the treatment of miliary tuberculosis and tuberculous meningitis.

Medical Journal of Australia, Sydney

1:477-512 (April 9) 1949. **Partial Index**

*Prevention of Gastro-Enteritis in Infants. M. J. Mackerras and I. M. Mackerras.—p. 477.
Treatment of Coronary Disease and Its Complications. J. G. Sleeman. —p. 483.
Diagnosis of Arterial Disease of the Limbs. J. H. Tyrer.—p. 486.
Diagnosis of Congenital Heart Disease. C. Fortune.—p. 490.
Surgical Treatment of Congenital Heart Disease. C. J. Officer Brown. —p. 493.

Gastroenteritis in Infants.—The Mackerras believe that the most important procedures by which gastroenteritis may be prevented from spreading in institutions which care for young babies are: (1) awareness of the seriousness of the problem and of the dangers presented by unrecognized infections in wards and nurseries; (2) strict separation of the duties and scrubbing-up facilities of "clean" and "change-up" nurses and institution of "infectious disease" technics for nurses, doctors and students who enter and leave gastroenteritis wards; (3) careful attention to ward hygiene, and especially to the methods of changing and disposing of soiled napkins and other contaminated material, and (4) preparation of food for infants in a separate, properly designed and equipped "formula room" and sterilization of the food in completely covered units before being sent to the wards. The authors are convinced that the procedures described are practicable and that the development of efficient control would result in a further significant reduction in the numbers of preventable deaths. The mortality rate of infants in the Australian state of Queensland was reduced from 36.2 per thousand in 1936 to 29.3 per thousand in 1946, but nearly 1 in every 30 babies still dies in its first year of life.

1:541-568 (April 23) 1949

*Nutritional Disease of Liver. I. J. Wood, H. W. Garlick, R. Motteram and others.—p. 541.
Observations on Pathology of Infectious Hepatitis and Allied Conditions. J. W. Perry.—p. 547.
Physiologic Considerations in Relation to Hepatic Disease. C. S. Hicks. —p. 549.
Account of, and Conclusions Drawn from, 50 Cases of Anesthesia with "D-Tubo-Curarine Chloride" Adjuvant. A. H. Smith.—p. 550.

1:569-604 (April 30) 1949. **Partial Index**

Hyperkinetic or Over-Active Babies. H. B. Graham.—p. 571.
Penicillin and Streptomycin in Treatment of Hemophilus Influenzæ Meningitis. J. Tom and S. Williams.—p. 573.
Making of Abdominal Incisions. A. E. Lee.—p. 575.
Treatment of Disseminated Sclerosis by Prolonged Lowering of Blood Prothrombin Level. L. B. Cox, P. Fantl and M. Fitzpatrick.—p. 577.

Nutritional Disease of Liver.—Wood and co-workers studied 109 cases of hepatic disease at the Royal Melbourne Hospital. Eighteen cases in which nutritional factors were responsible were studied by clinical observation, biochemical tests and aspiration biopsy of the liver. Seven cases are reported in detail. The etiologic factor was established by a dietetic history. Malnutrition was most frequently associated with alcoholism. The clinical observations in nutritional disease of the liver were lassitude, weakness and impairment of mentality. The appeitite was poor with nausea. Jaundice was slight or absent. Hematemesis was occasionally seen. The liver was usually enlarged and tender. Results of liver function tests were within normal limits in early cases. Only in severe relapses was there a considerable rise in serum bilirubin content. When portal cirrhosis was established there was usually a positive result in the cephalin flocculation test, impaired hippuric acid excretion, an increase in urobilinogen in the urine, a slightly raised or normal alkaline phosphatase level and a reversal of the albumin/globulin ratio. Aspiration biopsy of the liver provided a means for observing the stages in the progression of the fatty liver toward portal cirrhosis. Biopsy was also of assistance in establishing diagnosis and prognosis. Treatment consisted in removal of toxic substances, correction of the patient's dietetic habits and the giving of a liberal diet rich in protein and vitamins. It may be wise to add vitamin supplements and lipotropic substances such as choline. Intercurrent infections must be controlled

and the patient's occupation and habits adjusted. If this treatment can be maintained, the early case of nutritional disease of the liver may be cured and the downward trend of a patient with severe, advanced portal cirrhosis may at least be retarded. The authors believe that nutritional disease of the liver often remains undiagnosed, as the physician often fails in the task of discovering the patient's dietetic indiscretions.

Acta Medica Scandinavica, Stockholm

133:149-220 (April 23) 1949. **Partial Index**

*Observations on Methylthiouracil Treatment of Thyrotoxicosis. H. Lou and F. Wulff.—p. 149.
Comparison Between Two Swedish Influenza Virus Strains and Virus A Strain PR8. G. Löfström.—p. 162.
*Value of Implantation of Hypophyseal Tissue in Treatment of Hypophyseal Insufficiency. A. Westman.—p. 171.
Blood Iodine and Thyroid Function: Study of 254 Cases. P. Soisalo. —p. 186.
Fractionation of Fibrinogen. M. Horányi.—p. 210.

Methylthiouracil Treatment of Thyrotoxicosis.—Lou and Wulff report on 98 patients whose thyrotoxicosis was treated at their hospital between February 1944 and Dec. 31, 1946. The last follow-up examination of the patients treated with methylthiouracil took place during the second half of 1947 and January 1948, so that six months to nearly four years had elapsed since the onset of treatment. Twenty-two of the patients never received methylthiouracil, because they either wanted to be operated on or were not suitable for treatment with the drug. Another group of 15 patients were at first treated with methylthiouracil but were later subjected to either surgical or roentgenologic treatment. Of 61 patients treated only with methylthiouracil, 1 patient has been lost sight of, 1 died from coronary thrombosis and in 2 thyrotoxicosis persisted in spite of the treatment, but the other 57 are free from symptoms and able to work. Of these, 13 patients have been of good health and without methylthiouracil treatment for two years; 24 patients have been well and without this treatment for one year; 11 patients are still receiving methylthiouracil. On the basis of their experience the authors regard methylthiouracil therapy as satisfactory in most cases of thyrotoxicosis.

Implantation of Hypophyseal Tissue for Insufficiency.—Westman discusses the value of implantation of pituitary tissue in disorders regarded as attributable to hypophyseal insufficiency. The pituitaries were obtained from the skulls of freshly killed calves, which should not be too young, because pituitaries of very young animals contain little gonadotropic hormone. The pituitaries were minced to a semisolid mass and implanted not more than two hours after the animal had been killed. In female patients implantations were made usually into the labia majora after a subcutaneous pocket had been prepared by blunt dissection. In men an area in the pectoral or gluteal regions was selected for implantation. In the women with menstrual disturbances selected for this treatment, estrone and thyroid and in some also gonadotropic hormone therapy had proved unsuccessful. The implantation was effective in 3 of 36 cases of primary amenorrhea; 32 of 111 patients with secondary amenorrhea were benefited and 22 of 80 patients with oligomenorrhea were improved, 7 becoming pregnant. The implantation was effective in the 2 patients in whom adiposogenital dystrophy was associated with cryptorchism. Good results were obtained also in 2 of 10 patients with total alopecia and in 1 of 5 with alopecia areata. In 2 patients with diabetes insipidus a temporary beneficial effect was obtained. In several patients in whom ovarian disorders were accompanied with adiposity or delay in growth these conditions likewise improved after implantation. Implantation of pituitary may be more promising in cases with pluriglandular insufficiencies than is treatment with single endocrine substances.

Día Médico, Buenos Aires

21:464-504 (March 28) 1949. **Partial Index**

*Cranial Trauma and "Immediate" Papillary Edema. R. F. Matera, H. Casté and A. Martino.—p. 477.
Vertebral Rheumatism. C. E. Ottolenghi and F. Oleaga Alarcón.—p. 484.

Cranial Trauma and Papillary Edema.—Matera and collaborators reviewed the records of 350 cases of acute craniocerebral trauma which were compiled during ten years in a hospital department of neurology and neurosurgery. "Immediate" papilledema occurred in 16 cases (4.5 per cent). It was associated in all cases with a blind spot in the visual field and with engorgement of veins. In all of the reported cases papilledema was due to post-traumatic intracranial hypertension without hematoma. Immediate papilledema is bilateral, as a rule, and appears between forty-eight hours and ten days after the occurrence of cranial trauma. When it is unilateral it does not cause amaurosis. Unilateral amaurotic "immediate" papilledema appearing in about twenty-four hours after cranial trauma indicates hemorrhage of the subarachnoid sheath of the optic nerve. "Immediate" papilledema with intracranial hypertension is preceded by an increased tension of the central retinal artery. There is a pathogenetic relationship between the post-traumatic pathologic and physiochemical changes in the cerebral tissue and the occurrence of papilledema. The treatment consists of rest, rehydration and administration of hypertonic sodium chloride solution, provided the pulse, temperature, respiration, arterial pressure and mental alertness are within normal limits. Decompression operation is indicated when signs of so-called syndrome of compensation do not improve in the course of treatment for intracranial hypertension. Papilledema disappeared within the first month. Two patients had sequels: hypoacusia and diminished visual acuity. Cerebral dysrhythmia was demonstrated in the electroencephalographic tracings of 4 patients, one or two months after a clinical cure had been obtained. These observations suggest the advisability of periodic clinical and electroencephalographic observations to evaluate the progress of the lesion.

Lyon Chirurgical

44:257-384 (May-June) 1949. **Partial Index**

*Infiltration of Stellate Ganglion, Sympathectomy and Arteriectomy in Embolism and Thrombosis of Cerebral Arteries and After Injuries of the Carotid Artery. R. Leriche.—p. 257.
Functional Arrest of Cerebral Origin; Treatment by Infiltrations of Upper Cervical Sympathetic Ganglion. P. Stricker.—p. 264.
Surgical Intervention on Sympathetic Nerve in Treatment of Cerebral Embolism and Thrombosis. A. de Sousa Pereira.—p. 271.
*Experimental Research on Pathogenesis of Acute Pancreatitis; Provocation by Stimulation of Left Splanchnic Nerve. P. Mallet-Guy, J. Feroldi and E. Reboul.—p. 281.

Interventions on Cerebral Vasomotoricity.—Leriche cites his observations in 1920 when he attempted to produce cerebral ischemia in patients with jacksonian epilepsy by pericarotid sympathectomy, prior to the excision of meningocortical scars. It was demonstrated then that cerebral vasoconstriction could be obtained by intervention at a distance. In 1936 in 1 case of apoplectic attack following hysterectomy in an obese woman aged 58, and later in 8 instances of postoperative hemiplegic coma, the author observed definite improvement from infiltration of the stellate ganglion. Ganglionectomy was performed in 1 case of Babinski-Nageotte syndrome in a patient with angina pectoris. Ataxia and cerebellar symptoms disappeared and the attacks of angina pectoris were controlled. A war veteran, who nineteen months previously sustained a gunshot wound in the neck involving the common carotid artery, presented a partial injury of the left brachial plexus, dysarthria and a right hemiplegia due to cerebral ischemia. The speech was restored by the resection of the occluded segment of the common carotid artery. The circulatory dynamics of the external and internal carotid arteries were not changed by the arteriectomy. The reversibility of the symptoms of central origin can be explained only on the basis of modification of the cerebral vasomotoricity. In a second case, a war veteran sustained a gunshot injury of the carotid artery which resulted in considerable dysarthria, loss of memory and hemiplegia. Speech and rhythm of thought were improved considerably by repeated infiltrations of the stellate ganglion. Pericarotid sympathectomy restored these functions to near normal. These results can be explained only by the relief of cerebral vasoconstriction. Surgical intervention on the sympathetic nerves affords definite therapeutic possibilities in cerebral vascular disturbances.

Pathogenesis of Acute Pancreatitis.—Experiments by Mallet-Guy and co-workers on 126 guinea pigs and 16 dogs demonstrated that acute pancreatitis may be produced by stimulation of the left splanchnic nerve or of its peripheral end by faradic current for thirty seconds in guinea pigs, and from stimulation of the left splanchnic nerve by faradic current for

fifteen minutes or longer by ligature or by injection of a chemical agent in dogs. The pancreatitis was severer when the stimulation of the left splanchnic nerve was performed during the period of digestion, that is, in the state of secretory activity of the pancreas, or in the course of anaphylactic shock. Acute pancreatitis could not be produced by anaphylactic shock alone, nor was it observed after electric stimulation of the right splanchnic nerve, of the central end of the splanchnic nerves and of the left vagus. Biopsy of pancreatic tissue suggested that the acute pancreatitis produced by stimulation of the left splanchnic nerve was due to vasomotor disturbances (ischemia followed by stasis) in the pancreas. These experimental facts confirm the concept that local vasomotor disturbances of the pancreas may produce acute pancreatitis in man. A physiopathologic basis is thus afforded for the indication as to the treatment of human pancreatitis by left splanchnicectomy.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

93:1029-1104 (April 2) 1949. **Partial Index**

Early Recognition of Mammary Carcinoma. W. F. Suermondt.—p. 1030.
*Glutamic Acid in Treatment of Mentally Retarded Children. W. Ernsting.—p. 1044.
*Artificial Insemination in Human Subjects. M. H. Tromp.—p. 1054.
Bronchography in Pulmonary Tuberculosis. P. Zuidema.—p. 1063.

Glutamic Acid in Mentally Retarded Children.—Ernsting administered glutamic acid to 8 mentally retarded children and treated 4 controls with an indifferent substance. No mental progress could be observed in those treated with glutamic acid; they did not advance more than did the control group. Some seemed to be less dull and inattentive, and emotional instability was lessened, but there was no corresponding improvement in the intelligence quotient. The same changes were observed in the controls. The author stresses that in evaluating the results of such tests, the mental and physical condition of the child should be taken into account, also the learning of the test and the influence exerted by close attention to the child.

Artificial Insemination in Human Subjects.—Tromp reviews the French, British and American literature on artificial insemination and discusses the legal aspects of this problem. The Netherlands have no law regarding artificial insemination in human beings. A physician who resorts to it is not punishable by law. Artificial insemination with a donor's sperm is inadmissible for eugenic and other reasons. In special cases in which the physical and mental health of the wife is impaired by being childless, and in which fecundation by the husband is impossible, the physician may consider artificial insemination, provided both husband and wife desire it and the wife is not likely to suffer harm from pregnancy and confinement.

Presse Médicale, Paris

57:401-416 (May 7) 1949

*Roux and Yersin's Toxin in Diphtheritic Paralyses. G. Ramon.—p. 401.
*Late Results of Treatment of Infiltrating Cancer of the Bladder by Partial Cystectomy. R. Gouverneur and P. Aboulker.—p. 402.
Symptomatology of "Circumscribed" Bronchitis. J. M. Lemoine and J. de Leobardy.—p. 404.

Roux and Yersin's Toxin and Diphtheritic Paralysis.—Roux and Yersin demonstrated in 1888 that diphtheria is an intoxication caused by a poisonous substance originating in the diphtheria bacillus. By injecting variable doses of this soluble toxin into animals, these two pupils of Pasteur reproduced various forms of diphtheritic intoxication ranging from those resulting in death within a few hours to those manifested by fatal paralysis at a later period, or in which recovery may occur. Ramon rejects Ehrlich's concept that toxon, one of several hypothetic diphtheritic poisons, may be responsible for diphtheritic paralysis and delayed death. Experiments performed by the author on guinea pigs showed that paralysis may be produced with a minimum amount of a fresh diphtheritic filtrate which possesses a maximum toxicity. Injection into the leg of a guinea pig of a small amount of diphtheritic toxin whose toxicity had been reduced but not destroyed by the addition of antitoxin or formaldehyde produced a mild edema in some of the animals at the point of the injection. Within fifteen to twenty days some of the animals showed signs of paralysis in the leg into which the injection was made. Death from generalized progressive flaccid paralysis occurred within thirty to forty days after the injection. The course of this nervous disturbance could be accelerated or retarded by increasing or reducing the dose of the toxin. Clinical observations corroborated the results of the animal experiments.

Infiltrating Cancer of the Bladder.—Gouverneur and Aboulker report late results of partial cystectomy performed on 46 patients with infiltrating carcinoma of the bladder. In 32 of the patients the tumor was localized in the lower part of the bladder and in 14 it was in the upper part. Partial cystectomy had been recommended particularly for cases of the latter type. Eleven of the 14 patients had recurrences, which were fatal in 10. Of all 46 patients, 3 recovered without recurrence for five, seven and nine years, respectively. Five patients survived less than five years. Thirty-five patients had a recurrence, which was fatal in 32. Three patients survived a second intervention for two, five and six years, respectively. Two patients were lost sight of and 1 patient died from a perforating duodenal ulcer. Partial cystectomy should not be considered as a curative treatment for infiltrating cancer of the bladder except for rare cases in which the tumor is limited in surface and depth.

Ugeskrift for Laeger, Copenhagen

111:223-258 (March 3) 1949

*Intestinal and Peritoneal Irrigation in Treatment of Uremia and Anuria. J. E. Poulsen and H. Haldbo.—p. 223.
*Experiences with Peritoneal Irrigation and Intestinal Irrigation in Uremia. O. Selvaag.—p. 227.
*Treatment of Uremia with Intestinal Dialysis. C. Brun.—p. 229.
Coronary Occlusion in Vaccinated Persons. M. Faber.—p. 235.
Significance of Bed Rest in Origin of Acute Attack of Arthritis Urica. M. Faber.—p. 237.
Clinical Symptoms in Thrombosis in Veins of Lower Extremities and Pelvis. B. S. Pedersen.—p. 239.

Intestinal and Peritoneal Irrigation in Treatment of Uremia and Anuria.—From personal experience and reports in the literature Poulsen and Haldbo conclude that intestinal irrigation is not justifiable in treatment of anuria as late as four or five days after onset. There is grave danger of pulmonary edema. In anuria where there is a possibility that renal function may be regained, and where more lenient methods have been unavailing peritoneal irrigation is preferred. The danger in the procedure lies partly in the washing away of protein substances and partly in the risk of infection. The importance is stressed on hourly control of the most important aspect, first of all of shock, and of readiness for serum or blood transfusion. A good technic, sterility of apparatus and use of penicillin are the decisive factors in the control of infection.

Peritoneal and Intestinal Irrigation in Uremia.—Selvaag considers extrarenal removal of urea and other toxic products from the blood by peritoneal irrigation and intestinal irrigation effective methods of treatment, calling for little technical equipment but making some demands on laboratory service. The treatment is not difficult and in the absence of better methods is recommended in oliguria and anuria with uremia threatening life and perhaps in certain intoxications. If the renal injury is due to surgical intervention in abdominal organs or results from or is accompanied with peritonitis, more complicated methods, such as the use of Alwall's artificial kidney, will be necessary. To what extent a tendency to edema or manifest edema is to be regarded as a contraindication will depend on whether a lavage fluid is available which prevents water resorption or can dehydrate the patient.

Treatment of Uremia with Intestinal Dialysis.—Brun says that all three forms of dialysis—artificial membrane, peritoneal lavage and intestinal dialysis—can in a relatively short time lead to a reduction of the urea concentration in the blood. Dialysis in uremia is dangerous and should be used only in places equipped for this type of treatment. He considers peritoneal lavage and artificial membrane the more dangerous, while the artificial membrane is probably the most effective in removing retention products from the blood but calls for great technical skill. Intestinal dialysis, which is technically simple, and peritoneal irrigation seem to be fairly similar in effect; it is doubtful that much besides urea is removed by them. Further experimentation is necessary.

Book Notices

Blakiston's New Gould Medical Dictionary: A Modern Comprehensive Dictionary of the Terms Used in All Branches of Medicine and Allied Sciences, Including Medical Physics and Chemistry, Dentistry, Pharmacy, Nursing, Veterinary Medicine, Biology and Botany, as Well as Medico-legal Terms. Editors: Harold Wellington Jones, M.D.; Norman L. Hoerr, M.D.; Arthur Osol, Ph.D. With the Cooperation of an Editorial Board and 80 Contributors. [Based on fifth edition of Gould's Medical Dictionary.] Cloth. Price, $10.75. Pp. 1294, with 252 illustrations. The Blakiston Company, Division of Doubleday & Company, Inc., 1012 Walnut St., Philadelphia 5; Toronto 2, 1949.

This dictionary, which is the first of its kind in the field of medicine, differs from other previously published dictionaries in the manner of its development. This is, as far as is known to the reviewer, the first medical dictionary to be built largely around the faculty of a medical school, utilizing at the same time the knowledge of many leaders of medicine from other medical schools. A reference to the list of contributors—unique again in any medical dictionary—reveals the authoritative character of those responsible for words and definitions in highly specialized fields.

The years that have been devoted to the development of this dictionary have called attention to medical lexicographic problems to which relatively little thought has been given previously. These problems concern such matters as obsolescence of medical words, the relative importance of proprietary or trade-marked drugs, the recognition of usage as the final authority and the decisions as to usage by leading workers in the fields concerned. In every field in which some authoritative group has established a terminology, that terminology has been emphasized.

Another feature of the dictionary is the alphabetization of all terms, including biographic, eponymic and similar designations. The illustrations are keyed to the text. Etymology is definitely associated with the important terms, and pronunciation is simplified by the use of a limited number of accents and dependence on phonetic spelling and an abbreviated key to pronunciation. When more than one pronunciation is given, the term most widely used is first.

The type is wisely chosen to aid rapid finding of any term that is sought, and the italic and Roman types used for etymology, pronunciations and definitions are exceedingly clear. Much of this clarity has been accomplished by proper white spacing. Altogether editors, publishers and contributors merit the appreciation of the medical profession on a fine production which will be an exceedingly useful tool to students, practitioners, medical authors and editors and indeed all concerned in the field of medicine.

Textbook of Pharmacology for Nurses. By Margene O. Faddis, R.N., M.A., Professor of Medical Nursing, Frances Payne Bolton School of Nursing, Western Reserve University. Assisted by Joseph M. Hayman, Jr., B.A., M.D., Professor of Medicine, School of Medicine, Western Reserve University, Cleveland, Ohio. Third edition. Cloth. Price, $3.50. Pp. 458, with 63 illustrations. J. B. Lippincott Company, 227-231 S. 6th St., Philadelphia 5; Aldine House, 10-13 Bedford St., London, W.C.2; 2083 Guy St., Montreal, 1949.

The use of drugs and the observations of their effects on patients have always been important for the nurse. This importance has increased because of the potency and specificity of the agents now in common use. However, unless care is exercised, the amount of information presented in a volume for teaching or reference may be overwhelming. The authors of this book have avoided this common fault. The material is offered in an interesting style—brief but informative. At the end of each chapter is a list of questions by which the reader may estimate her knowledge. The contents are divided into twenty-nine chapters, separated into nine units: orientation to the study of pharmacology and therapeutics, drugs used for their local effects, drugs used chiefly for their effects on the nervous system, drugs used for their effect on the respiratory tract, drugs used for their effect on the circulation, drugs which affect the gastrointestinal tract, drugs which affect the reproductive system and the urinary tract, preparations used in certain diseases and protection of the public in its use of drugs and cosmetics.

The book is intended to emphasize the nurse's responsibility in the care of patients being treated with drugs. The authors have adhered to this objective in the third edition and have provided a book that is compact, up to date and easily read.

Roentgen Diagnosis of the Extremities and Spine. By Albert B. Ferguson, M.D., Associate Professor, Orthopaedic and Fracture Surgery, Boston University. Annals of Roentgenology, a Series of Monographic Atlases, Volume XVII. Second edition. Cloth. Price, $15. Pp. 519, with 631 illustrations. Paul B. Hoeber, Inc., Medical Book Department of Harper & Brothers, 49 E. 33d St., New York 16, 1949.

This edition has been increased by 77 pages over the original edition. The first sixteen chapters are in all essence the same as the original volume. This applies both to text and to illustrations. There are only a few minor changes in the text. Chapters 17 and 18, however, are valuable new additions to this volume and the subject. Chapter 17 is a new chapter on specific tumors. This deals with the radiologic aspects of diagnosis in such a manner as to emphasize probabilities based on certain groupings, for example, according to age; seat of tumor, such as the humerus or femur; site of tumor, such as medullary or subperiosteal, and other characteristics. The author's approach should be of assistance to the radiologist, reducing probabilities in the diagnosis of specific cases. The eighteenth chapter deals with primary bone malignancy. It discusses the radiologic characteristics of primary lesions in an effort to differentiate them from secondary metastatic lesions. Both these chapters are well illustrated and form a valuable addition to the volume. The final chapter on the spine has been somewhat rearranged with some important additions. The author has gone into more detail with certain aspects of radiologic diagnosis of spinal lesions. Considerable space is given to the discussion of various static abnormalities of interest to the radiologist. The changes in this chapter have improved materially the subject matter as it appeared in the original volume. On the whole, for those who do not have the first edition it is an excellent reference volume. For those having the first edition the reviewer believes that the additional chapters and the change in the substance of the chapter on the spine make the book well worth having.

Studies on Hookworm Disease in Szechwan Province, West China. By K. Chang and Co-Workers. The American Journal of Hygiene Monographic Series, No. 19, May, 1949. Supported by the De Lamar Fund of The Johns Hopkins University. Cloth. Price, $3. Pp. 152, with 43 illustrations. Johns Hopkins Press, Homewood, Baltimore 18, 1949.

The present monograph is the first of a series of investigations on intestinal parasites in the Szechwan province, West China. Attention is directed to the prevalence, distribution and importance of hookworm, the factors involved in infection and dissemination and effective methods of control under local conditions. Later studies will consider Ascaris and Endameba histolytica.

Szechwan has a population in excess of 46,000,000. About 90 per cent of its inhabitants are supported directly or indirectly by agriculture. In considering the transmission of hookworm, the authors point out that hookworm in other parts of the world is largely the result of repeated promiscuous defecation near houses and the consequent human contact with infected soil. The disease in China, on the other hand, is an occupational one, largely restricted to agricultural classes who carefully conserve and utilize human excrement as fertilizer. The soil is infected as crops are fertilized, and human infection is brought about by contact of the human skin with soil in the fertilized fields. Such optimum conditions for the spread of hookworm are, however, not a universal accompaniment of the use of human excrement, but are present only as a result of methods employed for certain crops.

The authors have made an outstanding analysis of the role of agricultural factors in the spread of the disease. Among many important findings the following may be mentioned: Peculiar conditions prevent mulberry cultivation from being conducive to hookworm dissemination as in other parts of China. Cultivation of rice, sugar cane and citrus fruits are not associated with severe hookworm disease. Although vegetable gardeners become infected, the unique system of intercropping corn and sweet potatoes is responsible for most of the severe hookworm disease in the province. During the transplanting of sweet potato vines in the cornfields, there is a long and intimate contact between the human skin and infected soil.

Control of infection is unusually difficult under prevailing local conditions. The authors emphasize the need of establishing free clinics for specifically treating the disease in endemic centers, for programs directed toward nutritional betterment, including

the administration of iron, and for certain modifications in the intercropping of corn and sweet potatoes. They point out that although disinfection of night soil, either by prolonged storage or by the use of chemicals, is fundamentally important, it is not feasible under present conditions. Neither is the substitution of other fertilizers possible.

The National Health Service [with Appendices I-XIV]. By Charles Hill M.D., and John Woodcock. Cloth. Price, 16s. Pp. 283; el. Christopher Johnson Publishers, Ltd., 109 Great Russell St., London, W.C. 1, 1949.

The authors state the purpose of this book as one of "explaining in language as simple as accuracy permits the anatomy and physiology of the National Health Service as it is at the outset of the Service" (p. vii). They have done that job well in so far as any law which deals with the details of personal lives can be couched in simple terms. The basic structure of the National Health Service stands out clearly from the mass of different committees, areas and schedules of fees.

The book deals mainly with the administrative functions of the service—the expropriation of existing institutions, the arrangements made to cover the interim period before the service could be completely organized, the composition and duties of the various bodies created to carry out the purposes of the law, the range of services to be available and the provisions for payment of practitioners and institutions. While discussing the benefits available to the general public such as hospital, specialist, general medical, dental and pharmaceutical services, it also sketches the conditions under which private care may be continued. The various appendixes contain the names of persons serving on the various central committees, the hospitals included in or disclaimed from the service and details on compensation and terms of service for medical practitioners. The index provides a ready means of reference to the material in the book.

The introduction to the book points out that "it is the *promotion* of the establishment of a comprehensive health service which is imposed as a duty on the Minister, though the Act does not confer on any citizen a legal right to a complete service" (p. 1). Since the service is financed four fifths by general revenues and only one fifth by a payroll tax, the system in no way confers on citizens the same rights as holders of private insurance policies. The British government will attempt merely "to remove such financial barriers as exist between the community and the existing services and to initiate new forms of administration and organization for their development" (pp. 1-2).

This book is excellently adapted to its purpose of making clear the general organization of the new British Health system. It makes no valued judgments as to the reasons for instituting the system or as to the best way of organizing the services once nationalization has been adopted. It should be most valuable as an explanation of the administrative technic used in a new experiment in national health insurance.

Techniques in Physiotherapy. Edited by F. L. Greenhill, S.R.N., M.C.S.P., T.H.T., Sister-in-Charge, Medical Rehabilitation Unit, Royal Free Hospital, London. Assisted by C. B. Heald, C.B.E., M.D., F.R.C.P.; J. N. Barron, F.R.C.S., and J. Colson, M.C.S.P., M.A.O.T. Cloth. Price, 12s 6d. Pp. 222, with 45 illustrations. Hodder & Stoughton, Ltd., St. Paul's House, 20 Warwick Sq., London, E.C. 4, 1948.

This book purports to present "some of the newer concepts of physical methods and their application to the problems of rheumatism and other medical and surgical ailments." Aside from the two chapters written under the supervision of qualified physicians, the one on rheumatism and arthritis prepared with the aid of Dr. Heald and the one on burns and injuries of the hand prepared with the aid of Mr. Barron, the book is a veritable mine of misinformation. It is sad to observe that the author not only does not know what she is talking about but also does not even know that she does not know. The book is studded with such ridiculous statements as: For restoration of lymphatic flow "the current of choice is the direct current, the positive pole acting in the direction of the lymph stream. . . . Lymph and body fluids generally tend to pass from the positive to the negative pole." In treatment for thromboangiitis obliterans, three things only are recommended: short wave diathermy applied directly to the affected extremity, "histamine ionisation" and Buerger's exercises. It is suggested that the diathermy be applied as "a long application of twenty-five to thirty minutes once a week." No warning is given about the danger of applying diathermy to an extremity in which the circulation is impaired. There is no realization of the fact that twenty-five to thirty minutes of diathermy is not usually considered a long exposure by most experts in physical medicine, and there is no realization of the fact that any physical treatment which is given only once a week is almost certain to be inadequate. The author does not realize that the term "ionisation" is incorrect when used in the sense in which it is used in this text and calls ionization "a generic term meaning that treatment effects will rely upon the introduction of a known therapeutic 'ion.'" She speaks of iontophoresis as a term which was "formerly applied to direct current when this was used for ionisation." The Council on Physical Medicine of the American Medical Association pointed out long ago that term "ionisation" should not be employed but that the term "ion transfer" or the term "iontophoresis" should be used in describing the introduction of ions of certain medicinal substances into the bodily tissues.

It is useless to waste the reader's time with further references to the numerous mistakes and irrational recommendations. This textbook shows vividly what may happen when a person trained only in a limited field of therapy attempts to discuss indications and physiologic effects. It would be dangerous to place it in the hands of a physical therapy technician who might not appreciate its shortcomings. The intelligent physician certainly will be aware of its deficiencies and may become antagonistic toward this important branch of therapy. This book is not recommended. Not only will it misguide the technician but also it will probably antagonize any well-informed physician.

The Theory of Play. By Elmer D. Mitchell, Ph.D., Professor of Physical Education, University of Michigan, Ann Arbor, Mich., and Bernard S. Mason, Ph.D. Second edition. Cloth. Price, $4.50. Pp. 342. A. S. Barnes & Company, 101 Fifth Ave., New York 3, 1948.

All aspects of this many-faceted subject are presented by the authors of this revised and enlarged edition of a book that has had a long and serviceable career. As the authors note, the many significant changes that have taken place in the field of recreation in the last two decades make revision at this time desirable.

Divided into four parts, the volume opens with an instructive review of the historical background of play. In part 2 is discussed the theory of play, in part 3 the need for play and in the last section administration of play.

Perhaps the most significant of these is that considering the need for play, in which the authors review in four chapters the many benefits provided by proper utilization of play. Special emphasis is given in this section on health instruction in schools. To the authors' credit, they have presented in proper focus the physical findings during the World War II draft and emphasize the constructive lessons learned when play and exercise were employed as a means of conditioning those in the armed forces. This is elaborated still further in the next chapter, on the physical benefits of play.

Although primary interest in this volume is in the field of education, sociology and physical education, it is a rich source of informative background for every physician who has professional contacts with school or public health activities. Special chapters on school athletics and organization of play activities will provide many helpful suggestions in this field. Other chapters of interest are those on public play areas and summer camps.

Well annotated and with extensive lists of selected references at the close of each chapter, the book serves equally well as a textbook and a reference. It is of special value as a working tool for all who are actively engaged in the many fields where play is a factor.

Handbook of Materia Medica, Toxicology, and Pharmacology for Students and Practitioners of Medicine. By Forrest Ramon Davison, B.A., M.Sc., Ph.D. Fourth edition. Cloth. Price $8.50. Pp. 730, with 35 illustrations. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1949.

This edition has been revised to bring up to date the discussions concerning the use of drugs. The objective of the author still is to present information for the medical student and the practicing physician.

Female Sex Endocrinology: Concise Therapy. By Charles H. Birnberg, M.D., Associate Obstetrician, Chief of Female Sex Endocrinology, and Endocrine Laboratory, Jewish Hospital of Brooklyn, Brooklyn, N. Y. Cloth. Price, $4. Pp. 134, with 31 illustrations. J. B. Lippincott Company, 227-231 S. 6th St., Philadelphia 5; Aldine House, 10-13 Bedford St., London, W.C. 2; 2083 Guy St., Montreal, 1949.

This small book was prepared to serve as a quick reference on endocrinologic problems. Perhaps because of this the author has glib plans of treatment for many gynecologic disturbances. He advises a simple office procedure for stimulating ovulation which consists of cervical dilatation without anesthesia to the point of pain, using graduated cervical dilators. This procedure is done once a month five to seven days after menstruation has stopped and is repeated monthly for six months or more if need be. Perhaps during this time, ovulation would have occurred spontaneously. Other treatment for absence of ovulation consists of estrogens followed by progesterone for three or four consecutive months. For amenorrhea, the author prescribes intravenous use of pregnant mare's serum, plus estrogens and progesterone, given over a period of three months, repeated if necessary after an interval of three months. In the discussion on dysmenorrhea, androgens are recommended for the suppression of gonadotropic production of the pituitary. This treatment is repeated every other month for a year. Most gynecologists use estrogens for this purpose. Pelvic sympathectomy for intractable cases is not mentioned. For climacteric distress, the author advises hypodermic medication first and oral preparations only if the patient cannot take parenteral medication. This sequence should be reversed. The author mentions implantation of pellets for the climacteric, but since there are potent and satisfactory oral preparations there is no need for implanted pellets. For women who have had habitual abortions, progesterone is prescribed in the second half of the mentrual cycle before the period is missed. After the patient misses a period the following array of hormones is given: progynon D-H, prolactin, progesterone and alpha estradial benzoate. This therapy yielded 92 per cent successes in 100 cases of repeated miscarriages, a remarkable achievement.

In spite of the foregoing criticisms, the book contains a great deal of useful information. The author is a competent endocrinologist who has had considerable experience, but in the opinion of the reviewer he is too enthusiastic about what can be accomplished with hormone products.

Vitamins and Hormones: Advances in Research and Applications. Edited by Robert S. Harris, Professor of Biochemistry of Nutrition, Massachusetts Institute of Technology, Cambridge, Mass., and Kenneth V. Thimann, Associate Professor of Plant Physiology, Harvard University, Cambridge, Mass. Volume VI: With Cumulative Subject Index of Vols. I-V. Cloth. Price, $7.80. Pp. 435. Academic Press, Inc., 125 E. 23rd St., New York 10, 1948.

Thirteen researchers have contributed to this volume. Included in the contents are discussions of the chemistry and biologic action of pteroylglutamic acid and related compounds, vitamin K, nutritional requirements of the cotton rat and hamster, vitamins as pharmacologic agents, the assessment of human nutrition, vitamins in micro-organisms—distribution and quantitative synthesis, the B vitamins as plant hormones and the influence of adrenal cortex on the metabolism of water and electrolytes. While much of the information will assist the medical student and practitioner in understanding some of the problems related to the actions and uses of hormones and nutritive principles, the book obviously is a reference source and most useful for those with research interests.

Zinc Ions in Ear, Nose, and Throat Work. By A. R. Friel, M.D., F.R.C.S.I. Cloth. Price, $2. Pp. 60, with 42 illustrations. John Wright & Sons, Ltd., 42-44 Triangle West, Bristol 8, England; Williams & Wilkins Company, Mt. Royal & Guilford Aves, Baltimore 2, 1948.

The author of this small book became interested in zinc ionization shortly before World War I. As a result of his enthusiasm the procedure has had a degree of popularity in England, especially in school clinics, for the treatment of chronic otorrhea. The section dealing with the clinical application of zinc ionization and zinc electrolysis in chronic otorrhea describes Dr. Friel's experiences with tympanic sepsis, tympanic sepsis with granulations and polypi, attic and mastoid disease and external otitis.

A discussion of the procedure in hay fever and vasomotor rhinitis, a subject which intrigued some American rhinologists in the middle 1930's, occupies but two paragraphs. The third, and final, chapter briefly describes zinc electrolysis with special reference for destroying tissue in the nose and throat, as in the treatment of turgescence of the inferior and middle turbinates and the destruction of tonsils in adults. The curious reader may wish to read the book for the sake of becoming acquainted with zinc ionization. The evidence presented, however, will convince few American rhinologists and otologists.

The 1948 Year Book of Endocrinology, Metabolism and Nutrition. Endocrinology. Edited by Willard O. Thompson, M.D., Clinical Professor of Medicine, University of Illinois College of Medicine, Chicago. Metabolism and Nutrition. Edited by Tom D. Spies, M.D., Chairman, Department of Nutrition and Metabolism, Northwestern University School of Medicine, Chicago. Cloth. Price, $4.50. Pp. 544, with 83 illustrations. The Year Book Publishers, Inc., 304 S. Dearborn St., Chicago 4, 1949.

This is the third volume of the Year Book of Endocrinology, Metabolism and Nutrition. The authors have selected contributions that appear to have practical application to the knowledge and treatment of disease. While emphasis has been placed on observations of man, results of animal experiments have been included which seem to have definite bearing on the understanding of disease. In the section on endocrinology are discussions related to the pituitary, the thyroid, the parathyroids, the adrenals, the testes and the ovaries. The section on metabolism and nutrition includes discussions relating to the pancreas and liver, the alimentary tract, the hemopoietic, cardiovascular, cerebral and neural, genitourinary, dermal, muscular and skeletal systems and to malnutrition and undernutrition. In addition, there is a chapter devoted to therapy which is intended primarily for medical practitioners and students who are particularly interested in the role of food in the maintenance of health.

Each chapter consists of a collection of condensations or abstracts of articles that have appeared in various journals. Often editorial notes appear at the end of the abstracts, and sometimes these notes are more significant than the abstracts.

Histology and Histopathology of the Eye and Its Adnexa. By I. G. Sommers, M.D., Assistant Professor (Ophthalmology), College of Medical Evangelists, Los Angeles, Calif. Cloth. Price, $12. Pp. 784, with 69 illustrations. Grune & Stratton, Inc., 381 4th Ave., New York 16, 1949.

Here, at last, is a most complete volume in English on the eye and its histopathologic conditions, written by a Vienna-trained ophthalmologist who has spent many years in the United States and who understands teaching and the needs of the American or English-trained physician. From a simple perusal of the table of contents, which includes a preface; part I, Normal Histology, Embryology and Senescence; part II, General Pathology; part III, Histopathology of the Eye, and an index, with subtitles, it is readily noted that the author has a rational and logical approach. Discussions of source material and bibliographies are found at the end of part I and part II and at the end of each chapter of part III. In the preface the author gives an account of the literature in years prior to 1920 as noted in Henke and Lubarsch's comprehensive work. References are most complete. Every ophthalmologist, general histologist and histopathologist will indeed consider this as the "bible" of this subject in the English language.

Minutes of the Fourth Streptomycin Conference Held on October 9, 10, 11 and 12, 1947, at Branch Office 9, St. Louis, Mo. Recorded, edited and published by Veterans Administration Branch Office No. 9, St. Louis, Mo. Paper. Pp. 83, with illustrations. Veterans Administration, Branch Office No. 9, St. Louis, Mo.; Washington 25, D. C., [n.d.]

Minutes of the Sixth Streptomycin Conference, Held on October 21, 22, 23 and 24, 1948, Auditorium of the Ramsey County Medical Society, St. Paul, Minn. Prepared and edited by Veterans Administration, Branch Office No. 8, Tuberculosis Section, St. Paul, Minn. Paper. Pp. 317, with illustrations. Veterans Administration, Branch Office No. 8, Tuberculosis Section, St. Paul, Minn.; Washington 25, D. C. [n.d.].

These pamphlets present summaries of the proceedings of the fourth and sixth conferences of a large group of researchers engaged in a cooperative investigation of the effects of streptomycin in human tuberculosis. The conferences were organized under the auspices of the Veterans Administration.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

TREATMENT OF COMMON COLDS

To the Editor:—**The public is constantly bombarded with advertisements relative to common cold remedies. What is the attitude of the medical profession toward this procedure and what specific advice should a physician offer his patients as to the purchase of basic drug requirements (acetylsalicylic acid, nose drops, cough syrup and gargles) in combating the common cold?**

M.D., California.

ANSWER.—Authoritative medical opinion supports the view that no substance or combination of substances available at present can be relied on to prevent or cure the common cold. Recent surveys of products which now appear on the market reveal that many of them make claims involving the treatment or prevention of colds which are not justified by valid evidence. Advertisers exaggerate the effects which the medicaments will have on symptoms. Nevertheless, the public will continue to spend huge sums of money unnecessarily on obsolete, illogical remedies, such as rubbing remedies, salves and ointments, until it is educated to the foolishness of such practice. A number of simple agents and measures exist which families can be taught to employ for temporary relief and from which little harm will result.

The use of nose drops and inhalants probably ranks first among measures taken by the public to relieve colds. Nasal vasoconstrictors afford symptomatic relief for varying periods but are not curative. Liquid nasal medicaments which function on a rational, physiologic basis are compatible with ciliary activity, do not vary greatly in their p_H (5.5 to 6.5) from that of normal nasal secretions, are isotonic and are noninjurious and nontoxic. Prolonged and excessive use of nose drops and volatile inhalers occasionally results in secondary rebound congestion of the nasal mucous membranes. Prolonged administration of silver salts can produce argyrosis, while the continued use of nasal preparations containing mineral oil sometimes leads to the development of lipid pneumonia.

Although popular with the public, gargling has little therapeutic utility. Ordinarily, gargles do not provide medication behind the anterior pillars of the fauces. A number of investigators find that gargled materials will not pass beyond the third molar tooth, thereby reaching neither the tonsillar nor pharyngeal areas, because the act of gargling produces a restrictive influence. In most cases of acute, uncomplicated pharyngitis, a reasonable amount of relief may be obtained by irrigating the throat with hot, isotonic solution of sodium chloride by means of syringes or modifications of a douching apparatus.

Acetylsalicylic acid does not have any influence on the infectious process of the common cold. Symptomatic relief of headache, fever and muscle pain is, nevertheless, of value as long as the drug does not disguise the need for more vigorous treatment. A false sense of improvement may occasionally occur, thereby permitting the patient to resume activity too soon. Numerous cough mixtures to which laymen resort without the advice of a physician are of doubtful value. Expectorants or respiratory sedatives are best prescribed by the physician, as the preparation of the cough mixture should be governed by the type of cough and the age of the patient.

From time to time claims are advanced for special diets for either the prevention or the cure of colds. The dietary measures most frequently recommended for the prevention of colds include a high protein diet, a diet low in carbohydrates and large quantities of citrus foods, presumably to establish "alkalinization." None of these theories is supported by carefully controlled studies. The supplying of extra vitamins and other food elements to the person who does not show signs of deficiency disease does not protect him against colds. Procedures which have as their objective the conditioning of the body to sudden changes in external temperature of the skin, such as cold and hot shower baths, do not lower the incidence of the common cold. The scientific evidence against the value of oral cold vaccines is overwhelming.

The treatment of the common cold consists mainly in the relief of symptoms as they arise. Treatment should never be standardized but should be suited to the needs of each patient. During the earliest stages of the common cold the prime objective is to supply moisture by means of steam inhalations to the stricken upper respiratory passages. Alcohol has been utilized for generations to abort impending colds or to treat them. In reasonable doses it causes peripheral vasodilatation and reestablishes circulation in chilled cutaneous and mucosal surfaces. Little attention need be paid to fluids in the average uncomplicated cold; it is probably best to let thirst to a great extent determine the fluid intake. Cathartics and laxatives, long employed as home remedies for colds, do not have particular value; their excessive use may lead to dehydration. Rest in bed, especially if fever is present, diminishes the severity of the common cold, limits its spread to others and reduces the frequency of complications. It has stood the rigid test of time as a most sane and effective measure.

TOXICITY OF TETRACHLOROETHYLENE

To the Editor:—**One of my patients is much concerned over the possible deleterious effects of exposure to the fumes of perchloroethylene (tetrachloroethylene), philsolv® and tri-clene.® What is the toxicity of these compounds? Recently hypertension developed in the patient. Blood pressure was 170 systolic and 120 diastolic. A complete blood cell count and urinalysis failed to reveal abnormality.**

Charles H. Kosmaler, M.D., Elmira, N. Y.

ANSWER.—Tetrachloroethylene, philsolv,® a trademarked product that is basically tetrachloroethylene, and tri-clene,® a proprietary trichloroethylene preparation, are used in industry as degreasing agents. The active constituents, tetrachloroethylene and trichloroethylene, have similar toxic potentialities but of a lower order than the related chlorinated hydrocarbons, chloroform and carbon tetrachloride. Concentrations of 160 to 200 parts per thousand for tetrachloroethylene and trichloroethylene are tolerated. Concentrations in excess of these amounts predispose to stupor, dizziness, excessive perspiration, nausea and vomiting. Individual susceptibility to these compounds varies greatly. Chronic industrial poisoning with tetrachloroethylene shows a series of organ changes which point to metabolic disturbances. There may be slight injury to the heart, lowering of the blood pressure, a variable degree of liver damage and occasionally degeneration of the epithelium of the renal tubules. Chronic trichloroethylene poisoning causes polyneuritis, including paresthesia and disturbed sensibility in the extremities, paralysis of the trigeminal nerve, disorders of vision by optic nerve atrophy, and permanent blindness from retrobulbar neuritis.

There is no evidence to indicate that these compounds would be the immediate cause of the patient's hypertension. They have a dilating effect on the blood vessels, thereby lowering the blood pressure. Unless there has been sufficient renal damage incurred in their long-continued use to account for the hypertension, another causative factor should be sought.

SULFAMYLON®

To the Editor:—**1. Is sulfamylon® commercially available, and what are its uses? 2. What expectorant drugs are of value in (a) asthma and (b) acute laryngotracheobronchitis? Many commercial expectorants contain small amounts of codeine. Goodman points out that this is irrational because codeine tends to thicken bronchial secretions.**

Paul Russell, M.D., Inglewood, Calif.

ANSWER.—1. Sulfamylon® (4-aminomethyl benzene sulfonamide hydrochloride), also known as marfanil® or mesudin,® has been the subject of a number of clinical reports, particularly in the German medical literature. The drug was first investigated in the United States and discarded because its activity in mice against streptococci was low. Its properties have been described by Miller and his colleagues (*J. Am. Chem. Soc.* **62**: 2099-2103 [Aug.] 1940) and by Klarer (*Klin. Wchnschr.* **20**: 1250, 1941). The drug cannot be used systemically because it is largely inactivated in the blood stream, but it appears to have some value in the local treatment of wounds. Fox (*Ann. Otol., Rhin. & Laryng.* **56**: 946 [Dec.] 1947) discussed the use of sulfamylon® in rhinosinusitis and found it a satisfactory agent for controlling the acute stage of this disease. W. B. Clark (*Arch. Ophth.* **38**: 682 [Nov.] 1947) used the drug in ocular infections in which Pseudomonas aerugenosa was a secondary contaminant with satisfactory results.

Sulfamylon® has not been presented to the Council on Pharmacy and Chemistry, and there is no record of its distribution for other than clinical trial in this country.

2. (*a*) There is some question regarding the advisability of using any of the so-called expectorants in asthma. Recently, Gay and Long (THE JOURNAL, February 12, p. 452) found that isopropylepinephrine (isuprel,® isonorin,®) when used as a bronchodilator by inhalation also provides the type of benefit desired from an expectorant.

(*b*) Sollmann (A Manual of Pharmacology, ed. 7, Philadelphia, W. B. Saunders Company, 1948, p. 777) lists the following expectorants as sufficient to meet most needs: (1) against dry congestion: syrup ipecac, 1 cc., or antimony potassium tartrate, 5 mg.; (2) against thick secretion: ammonium chloride, 0.3 Gm.; potassium iodide, 0.25 Gm.; (3) against excessive thin secretion: terpin hydrate, 0.15 Gm. in capsules, and (4) against irritation: codeine, 5 mg., or alkaline gargles. It should be noted that codeine is not an expectorant but depresses the cough reflex. An excellent article on the use of expectorants was published by Brown in THE JOURNAL, July 24, 1937, page 268.

OXYTOCIC DRUGS IN PREGNANCY

***To the Editor:*—What is the consensus on use of beta-hypophamine and other oxytocic drugs in second and third stages of labor?**

Philip Levey, M.D., Los Angeles.

ANSWER.—There is difference of opinion concerning the use of oxytocic drugs in the first and second stages of labor. In some countries these drugs are used almost routinely during the first stage to shorten labor, but this practice is strongly condemned by all authorities in the United States. However, in some institutions pituitary extract is used frequently in the first stage of labor if labor pains are weak or if there is true uterine inertia. This is done at the Johns Hopkins Hospital and at Harvard University. Eastman (*Am. J. Obst. & Gynec.* **53**: 432 [March] 1947) reported the use of these drugs in 463 cases of uterine inertia observed during the last five years. Reid (*Am. J. Obst. & Gynec.* **52**: 719 [Nov.] 1946) reported the results of the use of pituitary extract in 1,609 cases of prolonged labor. The results in these two institutions are excellent. However, the administration of pituitary extract in the first and second stages of labor in the hands of those untrained in its use is dangerous. Maternal and fetal deaths have resulted from the use of these oxytocic drugs in the first and second stages of labor and even for the induction of labor. In the second stage particularly, oxytocics are powerful drugs. In a multipara the drug should be safe after complete dilatation, but in a primipara it may be wiser to employ a low forceps operation than to use pituitary extract. Certainly if the head is not on the perineum in the second stage the drug should never be used.

Practitioners who have not had special training in obstetrics should almost never use oxytocics before the uterus is emptied of both baby and placenta. In rare cases of uterine inertia they may resort to small doses of pituitary extract, such as ½ or 1 minim (0.03 or 0.06 cc.) doses, or preferably diluted pituitary extract. In the second stage the safest oxytocic is ergonovine maleate, but even this should not be given until the baby's head and anterior shoulder have been delivered. In the third stage oxytocic drugs have their greatest field of usefulness. They should be employed whenever bleeding is excessive, when the placenta has been removed and even when the placenta is still in the uterine cavity.

CANCER OF THE ANUS

***To the Editor:*—A man, 61, has had a small tumor situated directly beside the anus removed twice by thermocautery. The tumor was considered to be a papilloma or nonspecific condyloma. It was not examined histologically at the time of the first operation, twelve years ago. The second, removed one and one-half years ago, was said to consist histologically of "scar tissue." This time the small growth was deeply excised and proved to be a squamous carcinoma. 1. What is the probability of a local relapse in this case? 2. What are the probabilities of metatases? 3. Can ablatio recti plus artificial anus and clearing of inguinal nodes be avoided by roentgen irradiation and examining of the inguinal nodes at short intervals? 4. Is there a reliable biologic test for determining the presence of carcinoma?**

M.D., Massachusetts.

ANSWER.—Squamous cell epitheliomas comprise slightly more than 1 per cent of all carcinomas of the anus and rectum. In about 60 per cent of 127 cases of squamous cell and basal cell epitheliomas of the anus studied by Jackman the degree of malignancy was grade 3 or grade 4 according to Broders' classification. Contrary to usual opinion, it was found in this same group of patients that metastases to the inguinal nodes and extension by way of the blood vessels are relatively uncommon. Most of these tumors invaded the rectum by direct invasion, and metastases through the rectal lymphatic channels was common. In about 50 per cent of this group of 127 cases treatment consisted of radical surgery alone and, in the other 50 per cent, of radiation alone or in combination with surgery. Forty-five per cent of the patients survived five years. The consensus is that radical surgery combined with radiation therapy is the most suitable form of treatment.

At present there is no reliable biologic test to determine the presence of carcinoma.

TREATMENT OF DERMATITIS HERPETIFORMIS

***To the Editor:*—For seven months now, since the birth of a girl, my wife has had a pruritic, vesicular, reddish rash appearing in the sacral and gluteal areas, elbows, knees and about the nose and face which has been diagnosed as dermatitis herpetiformis. She has tried large doses of para-aminobenzoic acid, diphenhydramine hydrochloride and tripelennamine hydrochloride with temporary relief. She gets severe headaches, nausea and occasional vomiting with sulfapyridine. Is there a new means of treatment or desensititization to the infective organism? Is it possible to desensitize a person to sulfapyridine?**

M.D., Washington.

ANSWER.—When the cause of a disease is not known, the number of remedies recommended for it is apt to be large and so the list of treatments for dermatitis herpitiformis includes sulfonamide compounds, penicillin, arsenicals, autogenous blood, sodium thiosulfate, antihistaminic preparations, quinine and liver extract. All of these are of some value in controlling the disease, but they do not cure it. In some cases when sulfapyridine, usually the most effective drug, fails to give improvement, a change to another sulfonamide compound, such as sulfadiazine, may prove useful. Untoward reactions to sulfonamide drugs are not necessarily due to allergic hypersensitiveness. They may be due to retention of the drug, and in the latter case attempts at desensitization may be dangerous. If necessary, active desensitization by means of gradually increased small doses of the drug may be attempted. Failures, however, are more common than success. The whole problem of desensitization to drugs is still unsettled. It might be well in this case to prescribe Fowler's solution for a short time only, generalized ultraviolet radiation and an antihistaminic preparation, since it affords temporary relief. Ointments or lotions containing 2 to 3 per cent sulfur are often useful.

DERMATITIS HERPETIFORMIS

***To the Editor:*—A 55 year old white man has had dermatitis herpetiformis for about five years. Physical examination, including routine urinalysis and blood cell count, did not reveal any other significant abnormality, except a squamous cell carcinoma of the skin of the dorsum of the right hand. This latter was removed, and the patient was given roentgen therapy; there is no evidence of return of the carcinoma after three months. He has had a variety of treatment, including sedatives, antihistamine drugs, ultraviolet and roentgen irradiation, sulfadiazine and various lotions, all to no avail. I recently gave him potassium arsenite solution U.S.P. with relief of symptoms while he was taking it. After conferring with a dermatologist who stated that there is some danger of arsenical keratosis, I wonder whether to continue this therapy. What is the risk of this complication? Would 2,3-dimercaptopropanol (BAL) be of any value if keratosis occurs? Would other forms of arsenic be of value?**

M.D., Kansas.

ANSWER.—Fowler's solution sometimes produces precancerous keratoses. It would seem better, therefore, not to use it in a person who already has had a squamous carcinoma. Fowler's solution, in addition to familiar drug reactions, may also produce hyperpigmentation and neither the keratoses nor the pigmentation respond to treatment with BAL. The remedies recommended for the treatment of dermatitis herpetiformis includes, in addition to Fowler's solution, trivalent arsenicals, sulfonamide compounds, penicillin, sodium thiosulfate, antihistaminic preparations, quinine, autohemotherapy and liver extract. Sulfapyridine in most cases controls the disease effectively and usually with but small doses (5 grains [0.3 Gm.] three times a day). It does not cure the disease, but fortunately dermatitis herpetiformis usually spends itself in time.

RH SENSITIZATION BY TRANSFUSION

***To the Editor:*—A patient is Rh negative and has been sensitized by a transfusion. She has had 2 normal children; after the second delivery she received a transfusion which sensitized her. Six months ago she had another baby, which lived two days and died of typical erythroblastosis fetalis. She is insistent on not having a curettage. Is there any recent development that would provide this woman with a ray of hope?**

W. J. Klinck, M.D., Lennoxville, Quebec, Canada.

ANSWER.—This question could be answered more satisfactorily if more details had been furnished regarding the recently deceased child. If the infant died in spite of adequate treatment with transfusion of Rh-negative blood, the prognosis in case of a new pregnancy would be worse than if the infant had not been so treated. In the latter case, one could hope that treatment of the baby to be born may be effective in saving it as it does in the majority of cases of erythroblastosis. The 2 living children and the husband's parents should be tested for the Rh factor and if any of them are found to be Rh negative, the husband's heterozygosity with regard to the Rh factor will be demonstrated. That would mean that he may give issue to an Rh-negative healthy child. If the husband's type is $Rh_1(CDe)$, testing his blood with anti-Rh' (anti C) serum may also establish

whether he is heterozygous. Carter (Rh Hapten: Its Preparation, Assay and Nature, *J. Immunol.* **61**:79-88 [Jan.] 1949) reported recently that injection of Rh hapten during pregnancy can prevent erythroblastosis in the infant. If confirmed this treatment would be the answer to this woman's as well as to all other similarly affected women's prayers.

METAL PICKLING

To the Editor:—**What information have you on the effects of inhalation of fumes of hydrochloric acid (50 per cent) in the process of pickling steel? Would there be changes in the nasal turbinates such as polyp formation? Workers are essentially unprotected.** **M.D., Pennsylvania.**

ANSWER.—A 50 per cent hydrochloric acid concentration in metal pickling is most unlikely, since the concentrated commercial acid is only about 38 per cent. A 5 per cent solution is closer to average concentration for steel pickling. The anhydride of hydrochloric acid is hydrogen chloride. This gas is highly irritating and most tolerance standards are based on this state. In solution, as in pickling vats, hydrochloric acid has lost its dehydrating properties and thereby becomes of diminished physiologic concern. Although hydrochloric acid pickling is ordinarily a cold process, acid does reach the atmosphere due to the fact that highly numerous hydrogen bubbles formed at the metal face, on bursting at the liquid surface, "spit" acid into the atmosphere. Although harmful prospects are not high, such acid may produce irritation to any or all mucous tissues and to the teeth. Chiefly the damage, if any, is limited to the upper part of the respiratory tract. If severe damage occurs, which is not anticipated from a 5 per cent pickling bath, erosion of teeth and membranes may arise. Septal ulceration has been described. Polyp formation is not an expected lesion.

HYPERTHYROIDISM

To the Editor:—**I have a patient, a 41 year old white woman, with classic symptoms of hyperthyroidism, including mild exophthalmus and a basal metabolic rate of 45. I have advised her to have an operation, but she has been advised elsewhere that she can be treated adequately with radiation therapy without surgical intervention or medication. I would appreciate your counsel on the use of radiation therapy in the treatment of hyperthyroidism.** **M.D., Alabama.**

ANSWER.—Roentgen therapy for exophthalmic goiter is not satisfactory and is rarely used at present. The best method of treating the patient probably would be to perform a subtotal thyroidectomy after adequate preoperative preparation with propylthiouracil and iodine. A fairly large percentage of patients can be treated satisfactorily with propylthiouracil alone, and probably a still larger percentage with radioactive iodine without surgical intervention. In most clinics up to the present time, these two methods of medical management of exophthalmic goiter have been used in patients who presented poor risks for operation.

CHRONIC CONJUNCTIVITIS

To the Editor:—**What is the proper treatment for chronic conjunctivitis which is due to infection with Trichomonas vaginalis?** **M.D., Wisconsin.**

ANSWER.—Trichomonas vaginalis is an extremely uncommon cause of conjunctivitis. In vitro studies (Trussell, R. E., and Johnson, G.: Experimental Basis for the Chemotherapy of Trichomonas Vaginalis Manifestations, *Am. J. Obst. & Gynec.* **48**: 215, 1944) indicate that many of the antiseptics in common use in ophthalmologic practice are effective. Application of 0.5 per cent silver nitrate to the palpebral conjunctiva combined with a local antiseptic or sulfonamide preparation should be effective. Additionally, irrigation of the lacrymal sac, prevention of contamination of the conjunctiva by the fingers and treatment of Trichomonas infestation elsewhere are indicated.

RADIOACTIVE THERAPY IN HODGKIN'S DISEASE

To the Editor:—**Several patients have asked me about the use of an "atomic cocktail" in Hodgkin's disease. Please comment.**

William Hibbitts, M.D., Texarkana, Texas.

ANSWER.—The raising of false hopes for persons who have lymphoblastoma and Hodgkin's disease by vivid accounts in the lay press of the beneficial effects of "atomic cocktails" is to be lamented. The principal treatment for Hodgkin's disease at this time consists of roentgen rays administered by one well experienced and versed in the handling of this disease by this mode of treatment. When the disease has no longer responded to roentgen rays, various radioactive isotopes have been administered by injection, and in some instances these seem to bring about a remission that would not be expected from localized irradiation of affected glands. The beneficial effects, if they ever accrue, are only temporary. Some have maintained that the use of radiophosphorus is merely another form of giving roentgen therapy and that the two methods are interchangeable but that one does not possess a special virtue over the other. Your patient may be assured that "atomic cocktails," which really mean ingestion of radioactive materials, offer nothing special and that their use is not "brand new," as radiophosphorus has now been employed for several years in special centers.

AREAS OF BALDNESS

To the Editor:—**A patient, age 47, was operated on for appendicitis when 16, at which time the right ovary was removed. She has had one miscarriage and two induced abortions. The blood and spinal fluid are normal. The hair on the vertex is very thin, and there are areas suggesting alopecia; one small area is noticeable at the right temple. The patient does not have dandruff. Specify the danger of the use of hormones in a case of this sort. What estrogen would you suggest?**

G. C. Kilpatrick, M.D., Mobile, Ala.

ANSWER.—Areas or patches of baldness might be due to alopecia areata, which is treated by stimulating measures, such as massage, painting the areas with liquid phenol (neutralize with alcohol quickly), irradiation with ultraviolet rays, and the application of a scalp lotion. The treatment for ordinary baldness is much less satisfactory, and, although there is evidence to indicate an hormonal influence in the development of ordinary baldness, treatment with estrogenic substances has not yet been established as a practical method of therapy. The subject of baldness and its treatment was recently reviewed in THE JOURNAL.

Reference:

Hair and Scalp Treatments and Preparations, J.A.M.A. **139**: 840-844, March 26, 1949. A report from the Committee on Cosmetics.

PUFFINESS UNDER EYES IN CHILDREN

To the Editor:—**I read with interest the discussion of "Puffiness Under Eyes in Children" in the July 23 issue. Dr. Theron G. Randolph has described a syndrome which closely fits the type of case discussed. He calls it "fatigue syndrome" or "allergic toxemia." The symptoms are puffiness under the eyes (most noticeable in the outer, lower lid on arising), leg aches, nasal symptoms, sweating, tiredness unrelieved by rest and nervousness. It is not limited to children. In cases in which diagnostic criteria are fulfilled (including elimination of other possible causes of similar chronic symptoms) food tests are made, of the type developed by Herbert J. Rinkel following the lead of Albert H. Rowe. Common offenders are corn, wheat and milk. Using these methods I have been able to relieve patients to an extent which is nothing less than amazing.**

Frederic Speer, M.D., Kansas City, Kan.

To the Editor:—**The answer to the inquiry regarding "Puffiness Under Eyes in Children" in The Journal, July 23, 1949, did not mention chronic sinusitis, the probable cause in most cases in the northern part of the United States. This is particularly true in the absence of positive urinary findings, as noted in the inquirer's group of cases. Furthermore, the associated symptoms mentioned, such as anorexia, secondary anemia and frequent colds, are common in chronic sinusitis.**

Circles and puffs under the eyes were the rule in cold-susceptible children in the Chest Clinic and in children with rheumatic fever treated at the New York Post-Graduate Hospital. In 100 rheumatic children, all of whom had chronic sinusitis, my co-workers and I reported that 91 per cent had circles under the eyes and many had puffiness as well, particularly on arising (Brown, E. E., and Wasson, V. P.: Incidence of Chronic Sinusitis in Rheumatic Children, *Arch. Pediat.* 59: 735 [Nov.] 1942). The puffiness had been previously noted by Loeber and her co-workers (A Definite Sign Pathognomonic of Paranasal Sinusitis, *J. Pediat.* 1: 565 [Nov.] 1932). The sinuses fill up during recumbency, particularly if prolonged (Brown, E. E.: III Effects of Prolonged Recumbency in Paranasal Sinusitis, *Arch. Pediat.* 59: 546 [Aug.] 1942) and produce a congestion under the eyes and beside the nose. Puffs beside the nose were reported as existing in 86 per cent of rheumatic children with chronic sinusitis.

The frequently recurring colds are exacerbations of chronic sinusitis (Brown, E: E.: Common Cold Not Caused by Virus, *Northwest Med.* 44: 39 [Feb.] 1945; abstracted in The Journal 127: 1155 [April 28] 1945), each exacerbation causing increased puffiness.

All of these symptoms in children can be aided, first by diagnosing chronic sinusitis (Brown, E. E., and Wasson, V. P.: Clinical Diagnosis of Chronic Sinusitis, *Arch. Pediat.* 59: 723 [Nov.] 1942) and then using twice daily proper nose drops and warm wet towels to the face and elevating the head. The latter is accomplished by placing blocks, 2 to 6 inches (5 to 15 cm.) high, under the head end of the crib or bed.

Edward E. Brown, M.D., Ashland, Ore.